PHILADELPHIA, APRIL 30, 1887.

ORIGINAL LECTURES.

CLINICAL LECTURE ON RETENTION OF URINE.

Delivered at the Hospital of the University of Pennsylvania

BY JOHN ASHHURST, JR., M.D.,

Professor of Clinical Surgery, etc.

(Reported by WILLIAM H. MORRISON, M.D.)

GENTLEMEN,—I bring before you to-day a case of retention of urine, in which I have found it necessary to afford relief by the method described by Mr. Cock as "tapping the urethra at the apex of the prostate gland." I shall take this opportunity of making a few remarks on the subject of retention of urine. Retention must, in the first place, be distinguished from suppression. The latter is a much graver condition, and depends upon some fault in the kidney, either from organic disease or from sympathy with some other portion of the body. As a result the urine is not secreted, and the waste matters remaining in the blood soon give rise to symptoms of uræmia. In retention the urine is secreted but is not passed, and accumulates in the bladder. If there be free secretion of urine, and only retention, the patient may live almost indefinitely, particularly when the retention is of a chronic character, such as we meet with in the case of old persons with enlargement of the prostate. In these cases, retention more or less complete may last for many months. Some years ago a patient presented himself at this hospital, with the statement that his urine was running away all the time. He had been under treatment for paralysis of the bladder. On examination the bladder was found to be greatly distended, the vesical tumor reaching to the umbilicus. There was a certain amount of dribbling, but the bladder had remained full of urine for at least a year. The whole trouble was due to enlargement of the prostate.

Retention of urine may be due to several conditions. It may be the result of spasm. If a person is obliged to hold his water for an unusual length of time, it not unfrequently happens that when he attempts to empty the bladder he finds that he is unable to do so on account of spasm at the neck of the organ. Retention may also depend upon certain general conditions of the system: thus, in typhoid fever retention of urine is a common occurrence. There it is due to the fact that the nervous system, being under the influence of the poison of the disease, fails to recognize the necessity of emptying the bladder. The bladder, under these circumstances, may become much distended and great harm result.

Among the conditions that more commonly come under the observation of the surgeon is what has been termed spasmodic stricture, which is a condition very similar to the spasm at the neck of the bladder already referred to. A person may become chilled from exposure to cold, and when he attempts to pass water finds that he is unable to do so on account of spasm. There is another condition, which is termed congestive retention. Under such circumstances there is probably always some organic change, some stricture, which under ordinary circumstances gives no annoyance; but, as a result of some cause, congestion takes place in the tissues around the stricture, and retention of urine ensues. This appears to have been the condition in the present case. The patient has had a stricture for many years; then, as a result of exposure, there was increased congestion, he was unable to pass his water, and it was found impossible to pass an instrument.

The most important causes of retention of urine are, however, true or organic stricture of the urethra and enlargement of the prostate. It is necessary to distinguish between these, as their treatment differs. Retention from stricture is a more dangerous condition than retention from enlarged prostate. If the patient be a young man, it is probable that the difficulty is not due to enlargement of the prostate, though there may be an acute protatitis following gonorrhœa which may be accompanied by retention. The ordinary form of prostatic hypertrophy is to be looked for in those past middle life. It rarely occurs before the age of fifty years, while stricture is more common between the ages of twenty and fifty years. The age of the patient may therefore enable the surgeon to form an idea as to the cause of the retention. If the retention be not complete or constant, some information may be obtained by observing how the patient

passes water. In stricture, although the urine may be passed in a narrow stream, it is passed with a certain amount of force. The propulsive power of the bladder is not impaired, and the urine may be projected through the stricture even more powerfully than under normal circumstances, in accordance with the law of hydraulics that the force of a stream is increased in proportion to the diminution of the calibre of the tube through which it flows. If there be enlargement of the prostate, the urine will dribble from the end of the urethra instead of being passed in the ordinary parabolic curve. In this condition, the cause of the obstruction involves the propulsive power of the bladder.

The use of an instrument is, of course, the most satisfactory method of determining the cause of the retention. If the instrument be arrested in front of the prostatic portion of the urethra, the obstruction is due to stricture, but if it be stopped in the prostatic portion we know that there is enlargement of the prostate gland. The distance at which the prostate is reached varies in different cases, but the average is six inches. If the obstruction be found at less than six inches from the meatus it is probably due to stricture, but if the distance be more than six inches the prostate gland is probably at fault. As I have already said, it is important to make the distinction between these two conditions, for not only does the treatment vary, but the urgency is also different. If the retention be due to enlargement of the prostate, you may temporize to a certain extent. There is not likely to be such acute distention as will cause rupture of the bladder, and the patient may with safety be allowed to go a certain length of time without active treatment. In stricture, however, the patient is in more imminent danger, and, unless relieved, rupture of the urethra may occur. Rupture of the bladder does not often result from retention due to stricture. If the bladder be distended and the patient receive a blow over the pubes, rupture may occur, and the urine may escape into the peritoneum, exciting peritonitis, or it may be extravasated into the pelvic cellular tissue. If there be simply distention without violence, it is usually the urethra that gives way. The patient, after a violent straining effort, suddenly feels a sense of relief, the urine passes into the cellular tissue, and after a time gives rise to sloughing and gangrene, requiring free incisions to evacuate the effused fluid.

In retention from enlarged prostate it is usually possible to introduce an instrument without much difficulty, if a proper instrument be employed. The physician is apt to use the catheter found in the pocket-case, which, while sufficiently long for ordinary use, is not long enough to reach the bladder in many cases of prostatic obstruction. I have been called some distance into the country to empty the bladder in a case of retention from enlarged prostate, where the whole difficulty was due to the fact that the instrument employed had been too short. Sometimes there is enlargement of the prostate without obstruction. This occurs when the third lobe is not involved. In almost all instances, if the catheter be sufficiently long and of the proper curve, the retention can be relieved. A good plan is to have one of these long English catheters kept constantly over-curved. The catheter must not only be long, but it must be more than ordinarily curved. In order always to have one in readiness, it is well to keep the stilette over-curved. When the wire is withdrawn, the instrument will retain sufficient curve to pass the obstruction. Another good plan is to mould the catheter to the desired curve by placing it in hot water, and then fixing it in this position by immersing it in cold water. It will then keep the curve sufficiently long to permit the obstruction to be passed. There are special catheters made for these cases of enlarged prostate. Some are made with a large curve, while others have a short angular beak, as in this Mercier's or elbowed catheter. This instrument is straight for nearly its whole length, and then has an acute bend. This is sometimes useful, as the sudden rise of the beak enables it to slip over the obstruction.

If you are unable to introduce an instrument in a case of enlarged prostate, it becomes necessary to resort to some operative procedure. Tunnelling the prostate has been recommended. This consists in taking a solid instrument, directing it in what is considered the proper direction, and then forcing it through the prostate gland. This is a dangerous procedure, and apt to be followed by hemorrhage. If you have to resort to any operation, the best plan is to tap the bladder. If the prostate be not large this can be done

through the rectum, but if the prostate be much increased in size it is safer to tap above the pubis. This may be done very conveniently with the aspirator, but this has the disadvantage that the operation will probably have to be repeated as often as the bladder refills. It sometimes happens, however, that within a few hours after a patient has been relieved he is able to pass his water in the natural way. This also occurs after the use of the catheter, and the patient may go a considerable time without again requiring its aid.

Where the obstruction is due to stricture, and it is found impossible to pass an instrument, the urethra may be opened behind the point of obstruction. In this case I tapped the urethra at the apex of the prostate gland. Stricture, as you know, never involves the prostatic portion of the urethra, but is usually seated at the junction of the bulbous and membranous portions. If therefore an opening is made in the urethra at the apex of the prostate gland, you are certain to get behind the stricture. Such an operation is of course not adapted to retention due to enlargement of the prostate, although even there it may be employed to facilitate the introduction of a catheter. In performing the operation, an incision about three-quarters of an inch in length is made in the median line of the perineum, beginning half an inch in front of the anus. The forefinger of the left hand is introduced into the rectum and placed at the apex of the prostate, which can be readily recognized. The knife is then inserted into the incision, with its back towards the anus, and, guided by the finger in the rectum, is pushed onward until its point reaches the apex of the prostate gland. Having reached that point, you cut forward. This opens the urethra, which is at once known by the gush of urine. The knife is then withdrawn and a grooved director passed into the bladder, when, if the opening is not found to be sufficient, it may be cautiously enlarged. An elastic catheter is next introduced upon the director and secured.

The operation was performed in this case five days ago. We shall now remove the tube for the first time, and insert a clean catheter. The urine is beginning to escape by the side of the tube, and in a few days we shall dispense with it entirely. In the course of another week the urethra may be in such a condition as to permit the passage of an instrument, although when the operation was performed this was impossible. If a sound can be passed, we shall be able to cure the stricture by simple dilatation. If we are still unable to pass the stricture, I shall submit to the patient whether he desires an operation for the cure of the stricture, or whether he is satisfied to pass his water through the perineum. Many patients prefer the latter alternative, which is attended with no particular inconvenience. The sphincter power of the bladder is of course preserved, so that there is no incontinence. The only inconvenience is that in urinating the individual must assume a sitting posture. I have had patients who have submitted to an operation for the relief of the stricture, but, finding a tendency to recontraction requiring the constant introduction of instruments, have preferred to abandon the urethra and pass water through the perineum.

The operation which I have described is adapted to cases of retention of urine due to stricture, and not to those due to any other condition. When the retention is due to enlarged prostate, and a catheter cannot be passed, the bladder must be opened either behind the prostate or above the pubis. For the simpler forms of retention from spasm, it is usually sufficient to put the patient in a warm bath and give an anodyne. If this is not successful, a remedy which was formerly much employed may be tried. This is the tincture of the chloride of iron. This has the effect of relieving spasm, and has been found to be very successful. Where you can do it, however, it is always better to relieve the retention at once by the use of the catheter, a soft instrument being preferred. It is not desirable to have the retention last even a few hours, for there is always a certain amount of damage done to the ureters and kidneys even in this short period.

[NOTE.—The perineal tube was permanently removed two days subsequently, and on the thirteenth day a small sound with Thompson's curve (No. 7 of the French scale) was passed through the stricture with very little difficulty, and without causing any discomfort. The patient therefore can, no doubt, be cured by the ordinary method of dilatation, and the perineal wound will close of itself when the calibre of the urethra is restored.]

ORIGINAL COMMUNICATIONS.

REPORT OF A CASE OF INNOMINATE ANEURISM TREATED BY SIMULTANEOUS DISTAL LIGATION OF THE RIGHT COMMON CAROTID AND SUBCLAVIAN ARTERIES—RECOVERY.

Read before the College of Physicians of Philadelphia, March 2, 1887.

BY H. R. WHARTON, M.D.,

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I BEG to report the following case, which was operated upon by Professor John Ashhurst, Jr.

Andrew C., aged 42 years, who was born in Scotland and served for a time in the British army, and whose present occupation is that of a gardener, presented himself at Professor Pepper's clinic at the University Hospital with the following history. Eighteen months before his admission to the hospital he began to experience pain running from the throat to the right shoulder and arm, and this continued to be noticed at intervals until six months ago, when he began to be troubled with shortness of breath, and complained of a paroxysmal cough and difficulty in swallowing; at this time he noticed a swelling appearing above and a little to the right of the sternum.

From this time he suffered much from the symptoms above described, and had also great difficulty in sleeping in the recumbent position, and spent large portions of his nights in the sitting posture. The patient had never had syphilis, and the only thing to which he could attribute his present condition was a severe fall upon the right shoulder which had occurred two years previously.

The result of the examination by Professor Pepper was as follows. The patient presented a swelling above the sternum, extending from the middle line two inches to the right along the line of the clavicle. Inspection showed decided pulsation in the swelling, and palpation revealed its expansile character. Auscultation detected no bruit or thrill in the tumor, but the heart-sounds were heard over the area of swelling with great clearness; no murmur was detected over the right carotid or subclavian arteries; examination of the heart showed that its sounds were clear. There was noticed great venous suffusion of the face with distention of the venous trunks when the patient leaned forward. The left pupil was large, the right of moderate size; the right pupil promptly responded to light, the left one acted sluggishly. The radial and other accessible arteries were soft to the feel, so that there was no evidence of wide-spread arterial disease.

As the result of his examination, Professor Pepper was of the opinion that the patient was suffering from an aneurism of the innominate artery.

The case was referred to Professor Ashhurst, and was admitted to the surgical ward.

Professor Ashhurst, after a careful examination of the patient, concurred as to the diagnosis of innominate aneurism, and decided that the treatment by simultaneous distal ligature of the right common carotid and right subclavian arteries was that which offered the most hope of a cure of the aneurism, or at least of benefiting the patient's condition.

On November 13, one week after his admission to the hospital, the patient was etherized, and Professor Ashhurst cut down upon and ligated the common carotid artery just above the omo-hyoid muscle with a catgut ligature; the right subclavian artery was next exposed and ligated in its third part just outside the anterior scalene muscle with a ligature of the same material. The wounds were closed with silver sutures, drainage-tubes being introduced, and were dressed with oiled lint, the whole right arm being wrapped in cotton.

No immediate effect was noticed in the aneurism from the application of the ligature, nor were there any cerebral symptoms. The patient did well after the operation, and upon the succeeding day the temperature and color of the right arm were good. The wounds did well, and in the course of a few days it was noticed that the tumor at the root of the neck had become smaller and firmer and that its pulsations had diminished in force, the dyspnœa and dysphagia had also diminished very markedly, and the patient was able to sleep comfortably in the recumbent posture. Up to the time of his discharge from the hospital, repeated examination failed to discover any pulsation in the radial artery. After this time the patient's improvement was continuous, and he was discharged from the hospital on January 13, just two months after the operation, at which time he was examined by Professor Osler, who made the following report:

"Inspection shows no pulsation visible; right sterno-clavicular articulation prominent. Palpation reveals systolic shock at right sterno-clavicular articulation, and upon firm pressure a feeble pulsation can be felt; this is also noticeable when the finger is placed in the sternal notch. Percussion gives a clear sound beneath the first bone of the sternum until you approach close to the clavicle. There is a small area of dulness beneath the area of prominence. Examination of the heart shows the apex-beat visible just below the nipple; feeble cardiac pulsation felt on deep pressure. No increase of heart-dulness; heart-sounds clear at apex; at second right

interspace, first sound feeble, second sound loud and ringing. Accentuated second sound over first bone of sternum. Over the swelling at right clavicular articulation, first sound is dull, free from murmur, and the second sound is loud. The accentuation of the second sound is heard as far as the middle of the right clavicle; most careful examination fails to discover any indication of murmur."

The treatment of innominate aneurism by the consecutive or simultaneous application of distal ligature to the right common carotid and subclavian arteries has been employed in a sufficient number of cases, and the results following the operation have been of such a nature that it is now established as a well-recognized surgical procedure in the treatment of this affection.

The *rationale* of the treatment of innominate aneurism by the distal ligation of the right common carotid and subclavian arteries is as follows. By the occlusion of the right common carotid and subclavian arteries, if both be tied simultaneously, the amount of blood passing through the aneurismal sac is diminished about two-thirds, and there is a proportionate slowing of the circulation of the blood through the sac; the circulation continuing through the aneurism is, probably, about one-third of the usual amount, representing the blood sent to the large branches given off from the first part of the subclavian. By means of this diminished and retarded circulation we have, in favorable cases, consolidation, to a greater or less extent, of the aneurism, either from the formation of a laminated clot on the inner wall of the sac, or from the extension backward of a thrombus which starts at the site of the distal ligatures upon the carotid or subclavian arteries.

If the ligatures be applied consecutively to the carotid or subclavian arteries, the circulation of the blood-current through the aneurismal sac is diminished to a less degree upon the application of the first ligature. In cases which terminate favorably after this operation, the aneurismal tumor diminishes in size and becomes firmer, the pulsation becomes less distinct, and the pain and pressure-symptoms, if they had previously existed, disappear; that pulsation at the site of the aneurism is seldom entirely wanting is accounted for by the fact that a certain amount of blood still finds its way through the sac to supply the vessels given off from the first part of the subclavian.

The question as to whether it is better to practise simultaneous or consecutive ligation of the carotid and subclavian arteries in this form of aneurism is one upon which the highest surgical authorities hold some diversity of opinion. Mr. Barwell, whose successful cases and writings upon this subject have given a great impetus to the treatment of innominate aneurism by distal ligature, is of the opinion that the most rational form of treatment consists in the application of simultaneous distal ligatures to the carotid and subclavian arteries in properly selected cases.

He opposes the application of consecutive ligatures unless in exceptional cases; and in this opinion he is sustained by Mr. Erichsen, on the ground that by tying one vessel only, time is allowed for the gradual dilatation of the collateral vessels given off from the first part of the subclavian artery, thus rendering the application of the second ligature less effective in diminishing the amount of blood passing through the aneurismal sac.

He concludes that the result of tying the right carotid artery alone for innominate aneurism is not satisfactory, as this vessel has been ligated for innominate or aorto-innominate aneurism thirty times, with twenty deaths; and in case of aortic or aorto-innominate disease it has been tied seven times, and in only one instance has it proved beneficial. He concludes, therefore, that in low innominate aneurism, which almost always involves, to a certain extent, the aorta, it is safer to tie simultaneously the carotid and subclavian arteries than to tie the carotid alone.

Mr. Holmes, upon the other hand, looks with more favor upon the consecutive application of the ligatures; he considers the carotid ligature most important, and recommends its application first, and reserves the ligation of the subclavian for a subsequent period. He is in favor of ligating first the vessel in the direction in which the aneurism exhibits the greatest tendency to spread. He also believes that the distal ligature is efficacious in the treatment of innominate aneurism which is of the mixed variety, which is associated with marked aortic disease; in this opinion controverting the previous teaching that innominate aneurisms associated with aortic disease are unfavorable cases for

distal ligation. In this latter opinion he is supported by the favorable results following the ligation of the left carotid artery for aortic aneurism, as suggested by Mr. Cockle.

So far as I am able to ascertain, consecutive double distal ligation of the right carotid and subclavian arteries has been practised for innominate aneurism (as diagnosed) in eight cases, with three recoveries and five deaths, although there was temporary relief in one of the fatal cases.

I have been able to find the records of thirty-two cases of simultaneous double distal ligation of the right carotid and subclavian arteries for innominate aneurism (as diagnosed), in which the operation was followed by recovery in twelve cases, by death in sixteen cases, and by temporary improvement in four cases. It will be seen that the results of both methods of treatment as regards the number of recoveries is nearly equal, but it must be remembered that the number of cases in which consecutive ligation was resorted to is very small in comparison with that in which simultaneous ligation was employed. I think, therefore, that at the present time the weight of surgical opinion is in favor of the views of Mr. Barwell, that in innominate aneurism the simultaneous double distal ligation of the right carotid and subclavian arteries is both a more efficient and safer procedure than the consecutive ligation of these vessels.

REVIEW OF THE PROGRESS OF MEDICAL AND SURGICAL ELECTRICITY.

BY WILLIAM R. D. BLACKWOOD, M.D.,
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ELEVATION OF TEMPERATURE BY LOCALIZED ELECTRIZATION.

At a recent meeting of the Biological Society of Paris, M. Quinquand reported the results of a series of experiments on localized electrization in animals. He claims to have caused decided elevation of general temperature by this method, and so great was the result in certain instances "in increasing the central temperature as to kill the dog in a short time." The form of current used, the strength or duration, were not given (special correspondence to *British Medical Journal*), nor did he state upon how many experiments his deductions were based. Careful repetition of his method has failed in our hands to corroborate the assertion of this gentleman, under any st[illegible] H. A. [illegible]rrent, either galvanic or induc[illegible] one can reasonable bounds, whether [illegible]quenn or animals. The *local* rise was of course observed, but under all circumstances the elevation was transient. No general or central heightening was at any time noticed. The applications to animals were possibly not of value, as cruelty was studiously avoided; but in patients, and particularly in personal applications, the utmost bearable limit was reached with the results noted.

A tabular statement of the effect of electricity, both galvanic and faradic, in *lowering* abnormal temperature was included in a review in this journal not long ago,* the experiments being made by the writer.

According to M. Quinquand, the venous blood returning on the side treated contained less sugar than that of the opposite group of muscles: hence he argues that localized electrization would be a therapeutic method of increasing temperature generally, and that many physiological phenomena could thus be studied experimentally. This phase of the matter has not been investigated by the writer as yet, for lack of time, but it will be taken up shortly.

ELECTRICITY IN URINARY DISEASES.

Dr. W. E. Steavenson, electrician to St. Bartholomew's Hospital, contributes an article to the *British Medical Journal* in which he advocates galvanism in nocturnal incontinence of children and in relaxed sphincter of adults. Cystitis also has been benefited by the constant current in his practice, and the ordinary cases of undue frequency of micturition are much relieved by galvanism.

Dr. W. Bence Clarke also gives his experience in similar cases, and adverts to the treatment of gleet by electricity. The reporter called attention to the method five years ago in these pages, in which article the opinion was expressed that electricity is of service in treating inflamed surfaces such as exist in gleet, aside from the fact that stricture almost invariably coexists with chronic gonorrhœa. Dr. Clarke always uses the negative in the urethra, but, al-

* Philadelphia Medical Times, July 10, 1886.

though the writer does so usually, now and then he employs the positive internally. Under such circumstances the urethral rheophore is kept moving slowly from point to point for the minutes to prevent caustic effect.

GALVANISM in CHRONIC ULCER OF THE TONGUE.

Meyer recently gave an account of a case in *Berliner Klin. Wochen.* of a badly ulcerated tongue which had resisted treatment for nine years. It was originally caused by biting it during labor. The acute sensitiveness precluded all but liquid diet. One hundred and ninety applications were made prior to cure,—a very large number indeed, when the case is contrasted with those of leg ulcer, which are amenable to treatment in a fifth of the time noted.

In a recent case of the writer's, which resisted strapping, cauterization, and local depletion, with innumerable astringent and other lotions, ten sittings completely cured the patient. The force was twelve to fifteen milliampères.

Since writing the above, a much worse case has promptly recovered under galvanism. The patient was unable to attend to any duty from the pain of the ulcer, but is now on her feet for twelve or fourteen hours daily, although the varicose veins persist.

INDUCTION OF PREMATURE LABOR BY ELECTRICITY.

Dr. Green quotes from Walcher a case needing premature delivery from contracted pelvis, in which a current from ten elements was used,—the positive over the fundus, the negative in the cervical canal. Pains came on at every sitting, and in eleven séances labor set in. Bayer also reports four cases, and Baird, of Albany, reports two hundred and twenty cases. This gentleman employed faradism. He advocates electricity: 1, to modify the pains of labor; 2, to favor more rapid dilatation of the os; 3, to promote more vigorous uterine contractions; 4, to add tone to the abdominal muscles and to increase their working force; 5, to shorten the duration of labor; 6, to insure firm contraction, and thereby prevent post-partum hemorrhage, shock, and exhaustion; 7, to prevent undue expenditure of nervous force in debilitated cases, and thus invite prompt convalescence.

Several years ago the writer called attention to the use of electricity in obstetrics in the *American Journal of Obstetrics*, in which article the above points, with others, were considered and illustrations given of favorable results in inducing labor, in shortening the second stage, in controlling hemorrhage, and in securing rapid involution after delivery. We have found electricity superior to any other method of inducing premature labor from about the thirtieth week in a number of cases in which we assisted professional friends, and induction-currents were always preferable for this purpose. No pains were taken to exclude the fœtal head from the circuit, as Baird asserts to be necessary, because we do not believe that the current takes a straight line between the rheophores, but passes *around* the child through the better-conducting tissue of the uterus, the membranes offering considerable resistance.* Further, we do not believe that, except with extraordinarily skilled practitioners, the vaunted abdominal palpation is of much value, the result of our observations being that in most cases quite prominent gentlemen were mistaken in their diagnosis of the position, as finally proved by the accouchement. Moreover, no current of either galvanism or faradism can injure the child unless it exceed anything bearable by the mother.†

GALVANISM IN SCIATICA.

Dr. W. E. Steavenson gives a *résumé* in the *London Lancet* of sixty cases of sciatica treated exclusively by galvanism. Thirty-seven were cured, eleven were improved, two had returns which were then cured, nine did not continue treatment long enough for a fair test, and one still was ailing. From six to fifteen applications were required to complete the cure.

GALVANISM IN RECTAL STRICTURE.

Mr. Whitmore read a paper on this subject before the West London Medico-Chirurgical Society recently, giving notes of several cases thus treated, and he expressed great satisfaction with the results. One instance, in which two years' dilatation with bougies failed to alleviate, and in which the symptoms were alarming, was cured in three months under electricity. The method of operating was not stated.

It is singular that this has hitherto been untried in this affection, in view of the

* Medical Bulletin, May, 1885. † Ibid.

great service resulting from electrolysis in urethral stricture. How galvanism will act in stricture of the œsophagus is probably unknown: at least the writer is not aware of any reported cases. In the only one tried by himself the current could not be borne by the patient,—a delicate though not nervous lady,—even as low as three milliampères.

GALVANISM IN EXTRA-UTERINE PREGNANCY.

Dr. A. H. Goelet gives in the *New York Medical Journal*, December 6, 1886, notes of a case of extra-uterine gestation in which arrest of the pregnancy and dispersion of the resulting foreign body were produced by galvanism. The operation was done by Dr. Rockwell at three months, and was repeated twice more. Twenty cells were used (current-strength unknown), and for ten minutes each time. Relief from the characteristic suffering was secured at once at the first sitting, and in five months thereafter the tumor was scarcely perceptible to the touch. Galvanism was repeatedly used during this time, to insure absorption. The diagnosis appears from the description to be assured, and Dr. C. C. Lee coincided with Drs. Goelet and Rockwell in this view, after several consultations.

Dr. Aveling, senior physician to the Chelsea Hospital for Women, gives in the *British Medical Journal* notes of a case of extra-uterine gestation treated by faradism at the third month. Gaiffe's apparatus was used on four succeeding days, the tumor being clasped between an intra-vaginal rheophore and another over the abdominal parietes. The duration of each application was only ten minutes, and the current-strength was comparatively small, except during the last thirty seconds. The case was seen by Mr. Wrench, a surgeon of Baslow, and Sir Spencer Wells, and the diagnosis was confirmed by each. Two months afterwards the tumor was deemed encapsuled, but it was not reduced in size. Menstruation had been resumed, and the signs of pregnancy had disappeared.

Another case of ectopic gestation was reported in the same journal by Dr. Richard Petch, physician to the York Infirmary, in which galvano-puncture was employed.

In the debate upon the subject before the Obstetrical Section of the British Medical Association, at which a number of cases were referred to, Mr. Lawson Tait admitted his inability to diagnosticate extra-uterine pregnancy prior to rupture of the sac, and denied the ability of any one to make the discovery; but he was promptly met by our distinguished friend Dr. H. A. Kelly, of this city, who instanced one of his own cases in which a subsequent laparotomy confirmed the diagnosis. Now that the efficacy of electric treatment is abundantly manifest in rescuing the unfortunate mother from an almost certain death, despite the croaking of malcontents, claims of priority in thus operating are springing up all over the continent; but there is no doubt that Dr. Allen, of this city, was the first to demonstrate the procedure practically, just as Dr. Kelly has clinched the question of ability in the way of diagnosis. Philadelphia doctors are coming to the front, as their *confrères* the lawyers did some time ago.

With the experience gained from the treatment of five successful cases, I am surprised that any distinguished teacher should consider the diagnosis impossible or even difficult, or that doubt as to the method of operating should exist. That the strongest faradic currents obtainable from medical coils, when confined to the necessarily small area of the pelvis required, can injure the mother is to me inconceivable, yet the tetanization of the fœtal mass and its disintegration by the rapidity of the interruptions of current would inevitably destroy it. To do this also we must rely upon powerful currents *long continued*, and not risk the grave chance of rupture by spreading the treatment over a week, as is often done. *So much* current will destroy the embryo. Give *that much at once*, and keep it up for an hour at least. When assured of the fœtal death, then rely upon galvanism to disperse the tumor, which is an assured success, so far as I know from careful study of all recorded cases and knowledge of some not yet reported.

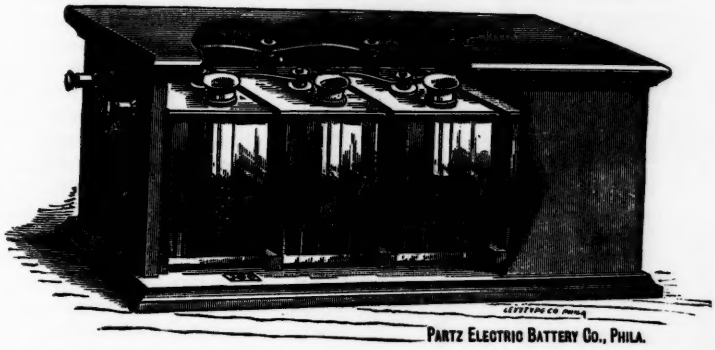
The case reported last summer by myself is now entirely well, and the mass was undiscoverable by the most careful examination after four months. Galvanism was used two or three times a week during this time.

FARADIZATION IN JAUNDICE AND HEPATIC TORPOR.

Dr. Henri Secretan stated to the Geneva (Switzerland) Medical Society the history

of a child affected with catarrhal jaundice. Before employing electricity various cholagogues were tried without avail, and the flow of bile was induced in three sittings of ten minutes each. One rheophore was applied over the site of the gall-bladder, and the other in the rectum.

In a series of articles on "Electricity in Abdominal Disorders,"* I have called attention to the efficacy of both galvanism and faradism in torpidity of the portal circulation, and a reference was made to the use of static electricity in sluggish liver. Since that time many cases have been treated by static electricity, and I am now of the opinion decidedly that no better agent exists as a cholagogue. Those who do not possess a static machine can depend upon faradism, however, and it is unnecessary to traverse the length of the bowel, as above stated, with any form of



PARTZ ELECTRIC BATTERY CO., PHILA.

current. By applying the rheophores so as to include the liver in varied axial lines, thorough stimulation is insured, provided, of course, that patency of the ductus communis exists. Relief to many cases of congested hemorrhoids has thus been assured.

ELECTROLYSIS IN LUPUS VULGARIS.

Gärtner and Lustgarten have reported ten cases of lupus treated as follows, with good results. Instead of using needles for puncture, as usually done, they employ a flat silver rheophore, slightly curved and encircled by a vulcanite ring. The plate is recessed a trifle, in order to keep it from touching the sound skin, and the elevated nodules alone are pressed upon. This arrangement is attached to the negative pole, and the other to any near indifferent point. Up to ten milliampères is directed for fifteen minutes or so, and the part is dressed with iodoform. The leathery scab falls in about fourteen days, and leaves a flexible pigmented cicatrix. The procedure is painless. A better material would be zinc in place of the silver, as its caustic effect is greater.—*Wiener Med. Wochenschrift*, xxvii., xxviii., 1886.

GALVANO-PUNCTURE IN CERVICAL ADENITIS.

The galvano-cautery has been used by Professor Dumenil, of Rouen, in a number of cases of scrofulous enlargement of the cervical lymphatic glands. A platinum wire was heated after introduction, without anæsthesia, and little scar resulted. Suppuration ensued in a few cases, and all were rapidly resolved by the measure. As cases of cervical glands are foci for further involvement of visceral glands in tuberculosis, the destruction of them is not only a question of relieving deformity, but an important prophylactic measure.

GALVANO-PUNCTURE IN GYNÆCOLOGY.

Apostoli formulates as follows in gynæcological operations by electricity:

1. In treating either the uterine parenchyma or the periuterine cellular tissue, great care is needed to avoid the peritoneum in the puncture.

2. Drainage should be facilitated if suppuration ensues or is anticipated.

3. The punctures should not exceed five or ten lines in depth.

4. The bladder should be avoided carefully.

5. In all cases of lateral or posterior puncture the localities of arterial pulsa-

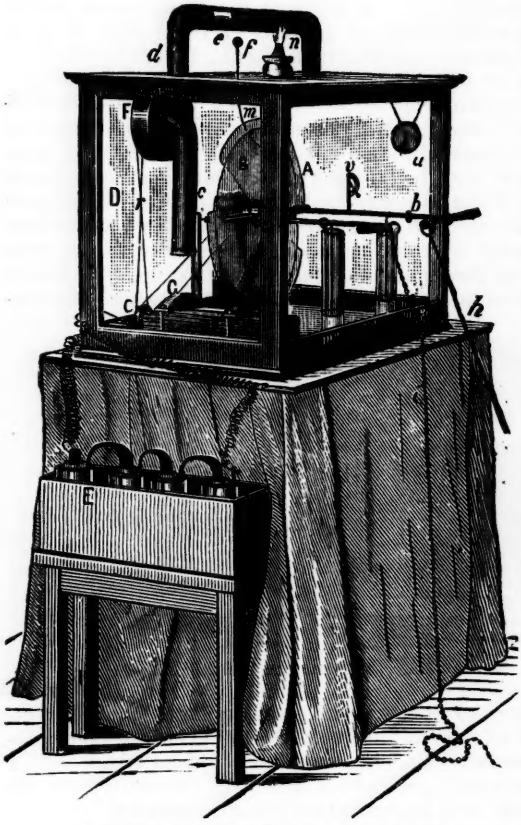
* Medical Bulletin, October, November, and December, 1884.

tion should be accurately determined and all large vessels avoided.

6. Rest in bed must be enforced for several days in all cases.

7. Antiseptic injections precede and follow all operations, and iodoform gauze tampons are habitually applied to all punctured points until complete closure ensues.

8. Sexual intercourse is prohibited until the cure is thoroughly assured.



Static Electrical Machine, with Hot-air Attachment.

GALVANO-CAUTERY IN HAY-FEVER, SNEEZING, AND ASTHMA.

Dr. F. De Haviland Hall describes a series of cases in the *London Lancet*, in which this method of treatment was successful. One lady, who had previously aborted whilst pregnant from uncontrollable sneezing, was carried safely to term by reducing a hypertrophied mucous membrane over the right inferior turbinated bone. Two cauterizations a fortnight apart sufficed. Dr. Hall also found a similar procedure serviceable in hay-fever, and anterior hypertrophies of the Schneiderian membrane in some cases of asthma. Local anæsthesia by cocaine was employed in all cases satisfactorily. We have found, during the summer, good results in two cases of the so-called "rose-cold" from light searing by the electric cautery.

NEW AND IMPROVED APPARATUS.

In our notice of the improvement in gravity cells by the Partz Electric Company in the *Times* of November 13, 1886, pressure on our columns permitted the introduction of one cut only. The cell illustrated was one with slotted cathodes, and is that intended to substitute the Leclanche, but the reference was to the new acid gravity, which is shown on page 501.

An ingenious method of insuring prompt action of static machines in murky weather is that now a favorite in France, where much more attention is paid to this form of electro-therapeutics than is done with ourselves. The air within the case is not only kept dry, but it is *warmed* to any desired temperature by maintaining its circulation through a tube in connection with a rotary fan-wheel. The two ends of the tube are within the case, but at a part which is exterior to it an alcohol-lamp heats the air as it passes. The fan, together with the rotating plates of the machine, is driven by an electro-motor, which is in turn energized by four Bunsen cells. Messrs. J. W. Queen & Co., of Philadelphia, are agents for the apparatus.

A NOTE ON THE IRRADIATION OF MOTOR IMPULSES.

Read before the College of Physicians of Philadelphia, March 2, 1887,

BY N. A. RANDOLPH, M.D.,
Professor of Hygiene in the University of Pennsylvania.

ABOUT two years ago this question arose in my mind: If a man perform work with the muscles of (*e.g.*) his

right hand exclusively, and to the point of fatigue, can he thereafter perform as much work, of the same nature, with the left hand as he could if the right had not been previously exercised?

It will be seen that this question relates in no wise to a comparison of the work of the two hands, but to an examination of the work which may be accomplished by one hand, as conditioned by the previous exercise or non-exercise of its fellow of the opposite side.

It is evident that the answer to this query is dependent on intracranial processes solely, and that such answer would throw some light upon the functional independence or interdependence of the two halves of the brain.

In order to answer the question just stated, certain conditions are prerequisite. The subject of experiment must have no conception of the object of the investigation, or he will unconsciously become a partisan of one or the other hand. He must also have a very strong inducement to exercise his volition to the utmost.

These conditions were fulfilled in the persons of some intelligent and vigorous convicts in the Eastern Penitentiary in this city. The stimulus was a money-prize to the man who accomplished the most work in a given time. In the prosecution of these experiments I am under obligation to the courtesy and assistance of Dr. W. D. Robinson, physician to the Penitentiary.

In the first series of experiments rubber-bulb syringes, identical in all their measurements, were used, and the amount of water which the men could transfer from one vessel to another in a given time was accurately measured and taken as proportionate to the work performed. Some forty observations were made by this method, with the uniform result that either hand could do more work when its exercise preceded than when it succeeded the similar exercise of its fellow of the opposite side. It was found, however, that the muscular effort could not be entirely restricted to one side of the body in this method, as great fatigue was always accompanied by a grimacing and writhing which implicated the muscles of both sides of the face and trunk.

A Morse telegraph was next used, the muscular movements in this case being restricted to an up-and-down motion of one finger of each hand, the number of such movements made in a given time being recorded on the usual long and narrow strip of paper as dots or dashes in accordance with the celerity of contraction and relaxation of the flexors of the finger. The results of this series of experiments were uniformly confirmatory of those before obtained, but the method had to be abandoned as productive of great eye-strain in counting.

I then had made the instrument which is here shown. It consists simply of the clockwork and dial of an ordinary gas-meter, to which a lever is adapted in such wise that each flexion of the finger is recorded by an appropriate motion of the index on the unit-dial. The apparatus is fixed in a box, upon which the hand and forearm may conveniently rest. The lever projects through an aperture in the lid, and a glass plate in the side permits the records on the dial to be easily read off and noted. Six healthy prisoners, supplied with the incentives of cash and competition, were repeatedly examined by this means. To each fifteen minutes were given to make the best record he could with (*e.g.*) the right forefinger, and thereafter the left forefinger was similarly exercised for the same time. On the following day the same process was repeated, always commencing, however, with the finger of the hand which had been used second on the previous occasion. No hand was ever thus employed twice on the same day.

The results were practically uniform. The man who for fifteen minutes flexed and relaxed his right forefinger with the greatest speed possible to him would, on the following day, accomplish on an average nearly ten per cent. less work with that finger when its exercise was consecutive to a similar exercise of the forefinger of the opposite side than when its work was initial.

Usually, more work could be accomplished by the simultaneous exercise of the two forefingers than by their exercise one after the other. In such exercise of both hands at once, and apparently from some unconscious effort at rhythm on the part of the subject, it was noted that the movements of the left forefinger were generally more active and rapid than when used alone, although in both instances the greatest effort at speed was evidently made. I am told that some pianists have a similar experience, inasmuch as they find it pos-

sible to exercise the fingers of the left hand more rapidly when the right is similarly engaged than when the right is inactive.

The relation of these facts to the observations of Dr. S. Weir Mitchell and Dr. Morris Lewis is largely supplemental in its nature. These observers, as is well known, showed that the knee-jerk is reinforced by any voluntary movement in any part of the body, and that this reinforcement was apparently due to such an irradiation of motor impulse from the active centres to other similar centres as placed them and their related muscles in a condition of heightened responsiveness to external stimuli. My studies not only tend to confirm these observations, but to show that the fatigue of one centre may induce a sympathetic fatigue in other centres.

These observations are of interest, inasmuch as they suggest that the centres for volition, attention, and co-ordination (or one or more of these) are not, in their functional activity, bilaterally symmetrical and independent, — that is, that these functions have not attained complete differentiation into right and left will, attention, or co-ordination; that probably the first effect of the voluntary activity of a portion of one cortical motor area is a stimulation of the corresponding portion of the other hemisphere, a stimulation that may result in its slightly premature fatigue; that apparently more work can be effected through the voluntary simultaneous exercise of two such portions of the motor apparatus than by their independent exercise, one after the other.

CASES PRESENTING PECULIAR MANIFESTATIONS OF MALARIA.

BY V. M. REICHARD, M.D.

IN the following cases the curability by quinine is considered as proof of the malarial nature of the disease. The cases belonging to the first series were treated in February and March, 1886; they were characterized by a peculiar temperature-record.

Case I.—Male, æt. 10. Health previously had always been good: now complained of what was considered a bad cold. Saw him on the second day in the evening, when his temperature was 101.5°. He had a harsh, irritating cough, with no expectoration; râles were heard over both lungs; pulse full and bounding; eyes injected, and lids somewhat swollen; bowels sluggish, and tongue slightly coated. Prescribed cathartic and nauseant expectorant. Next morning his temperature was 101°; the other symptoms were unchanged, except that the bowels had been pretty freely opened. So he ran on for several days, but without improvement. On examining his tongue more closely, I thought I noticed a condition which I have learned to associate with malarial fevers. The tongue was pretty well covered with a tough, white coating, except near the end, where it had very little if any coating. Through this the papillæ stood out prominently. Having failed signally in treating the "cold," I concluded to try the effect of quinine, and accordingly gave him twelve grains in solution; next day, ten; third day, five; continued at this daily dose for a week. After the first day his temperature remained normal, and he was up and about on the second day.

Case II.—Mrs. W., mother of Case I., æt. 35, of phthisical tendency. In the spring of 1884 she had a severe attack of catarrhal pneumonia, which left a slight impairment of left apex. The day her son first got up she went to bed, with pain in left mammary region and a temperature of 101°. Her cough was severe, with some mucous expectoration. I thought that I detected crepitant râles and beginning dulness over lower lobe of left lung, and instituted appropriate treatment. Saw her in the evening in very much the same condition: temperature still 101°. On the next day, as I could not find any adequate chest-symptoms, in lieu of something better I gave her twenty grains of quinine, with the result of clearing up the case. Under the regular use of quinine she made a perfect recovery, and has been in better health ever since than she had been at any time after February, 1884, though she was under great mental excitement while convalescing.

Case III.—E. W., youngest son of Mrs. W., æt. 4, was a bright, robust lad, who spent most of his waking hours out of doors, the type of a healthy country child. Went to bed the day his mother began to convalesce; saw him at 9 A.M. Except slight nervousness, he did not seem to be at all sick, and it was remarked by his parents and the nurse that it was his wish to be in bed with his mamma more than illness which kept him in. Ordered a mild laxative. At 4 P.M. he was taken with a convulsion, the most terrible it has ever been my lot to witness. Consciousness did not return until 10 P.M. He passed a moderately good night. Next morning the temperature was 102°, an uncontrollable diarrhœa set in, and he died in the evening, less than forty-eight hours after his first complaining. No post-mortem.

Case IV.—H. G., male, æt. 3, for several

weeks had been affected in an anomalous manner, now better, now worse; at no time much fever, and *at no time any periodicity*. This latter fact was noted in all this series of cases. There was not as much variation of temperature as in an ordinary case of typhoid fever. After having exhausted my resources and the patience of the family, I gave him quinine as an antimalarial, and the result was all that could have been wished.

Case V.—Male, æt. 12; was ill for several days. Evening temperature never above 103.5°; morning, never below 103°. In the light of the preceding cases, put him on quinine. As his stomach was irritable, mixed it up with an equal weight of chocolate. The case also promptly recovered.

These cases all occurred within a period of ten days, and all within a radius of one-eighth of a mile. Aside from the peculiar aspect of the tongue I have mentioned, there was nothing to indicate a malarial *element*, to say nothing of a malarial *cause*. Above all, there was no element of *periodicity*, which is regarded as so essential a feature of the continued malarial fevers.*

. The next series of cases was also peculiar.

Case I.—J. W., male, æt. 4. When two years old, several lymphatic glands in the neck suppurated and were discharged. Was well up to August, 1886; then had enlargement of the cervical and submaxillary lymphatics. Put on treatment, with negative results. Seemed to be some periodicity in his malaise, but no distinct febrile exacerbation or remission. He was cured at once by quinine. Never had malarial fever.

Case II. and *Case III.*—Were sisters, who had long been subjects of malarial paroxysms, though they had had no attack for nearly a year. About the same time both were affected as Case I.,—decided glandular enlargement without any tendency to suppuration. It yielded at once (within thirty-six hours) to quinine. Both ladies were of strumous type.

Case IV.—M. T., female, æt. 20. About four years before, a horse had fallen on her and injured her left tibia; afterwards she had considerable trouble with it. In December, 1884, I had incised it, evacuating a small amount of pus, with the result of putting the leg in better condition than it had been since the accident.

In December, 1885, she began to have severe pain in the limb. Counter-irritation relieved it for a time. Pain would recur in spite of all treatment. As the attacks of pain seemed to recur at regular intervals, I put her on large but gradually diminishing doses of quinine. Recovery perfect. About six months afterwards had slight recurrence, but did not see her; she sent for some of the solution of quinine and was relieved. At no time was the temperature above 99.5°. Had never had malarial fever.

The only explanation of these cases I am prepared to offer is that the dose of the malarial poison was too small to cause a distinct outbreak. As a chain is no stronger than its weakest link, so the weakest local point in all four of these cases was the first to suffer. This is the only way in which I can conceive of these cases being malarial, but that they were so I am fully convinced. Cases II. and III. expressed a belief that they had malaria, knowing the sensation from prolonged experience in former years. None of the last series had a temperature above 100° during their treatment.

FAIR PLAY, MARYLAND.

* Sternberg's "Malaria and Malarial Diseases," p. 209. (William Wood & Co.)

TRANSLATIONS.

IODOFORM IN THE TREATMENT OF GONORRHŒA.—In an interesting communication to *Le Progrès Médical* of March 5, 1887, M. Thiéry extols in high terms the use of iodoform in the abortive treatment of gonorrhœa. He states that he feels a certain timidity in presenting a new therapeutical agent for this most troublesome disease after so many others have been tried, accepted, and rejected; and yet, impressed with the fact—based upon the researches of Neisser and others—of the microbian origin of the disease, he was surprised that among all the antiseptics employed, such as corrosive sublimate, carbolic acid, boracic acid, resorcin, etc., iodoform should not have been included,—an antiseptic used daily in the practice of surgery.

Corrosive sublimate coagulates the albuminoids, forms non-antiseptic bases with them, and thus exerts but a passing and superficial influence upon the germs. Nitrate of silver acts upon the microbes, but at the same time seriously affects the mucous membrane. Iodoform, besides its antiseptic value, is readily absorbed wherever the mucous membrane is denuded, and is also decidedly analgesic,—two important qualities which adapt it specially to the treat-

ment of gonorrhœa. Its odor can easily be disguised by a little oil of eucalyptus, vanilline, etc.

The purpose of the abortive treatment of gonorrhœa at the present time is to destroy the gonococcus. This accomplished, the inflammation will readily subside with appropriate measures. In an examination of thirty-eight cases it was found that in the pus passed during the period from the first to the fifth day the gonococci were comparatively few in number. They increased from the fifth to the fifteenth day. The maximum was attained from the eighth to the tenth day, while after the fifteenth day they began rapidly to decline, sometimes remaining, however, as late as the end of the third week. These figures are important as showing the most favorable time for the use of the antiseptic injection. Antisepsis will be best accomplished during the first four days.

M. Thiéry reports six cases treated with the iodoform injection with the most gratifying results. In his *résumé* he states that as to iodoform-intoxication it seems impossible. In the employment of iodoform alone, its elimination can easily be verified by an examination of the urine. In one case only did the patient complain of the taste of iodine in the mouth. Its presence in the saliva could never be detected by means of the test. In its use there were no other uncomfortable sensations, and yet as many as twenty-nine injections had been given in a period of twenty-eight days. On the other hand, its action is safe, rapid, and positive, the microbes quickly disappearing, sometimes being entirely absent by the eighth day.

As failure in the treatment of gonorrhœa occurs usually on account of the patient's ignorance in managing the injection, M. Thiéry recommends that the physician always attend to this part of the treatment himself. He uses as the injected material iodoform *porphyrized* as completely as possible, and simply suspended in the oil of sweet almonds. Before making the injection, the urethra should be gently washed out, to remove as much of the pus as possible. Micturition just before the injection is the best means of accomplishing this result and avoiding any backward flow of the pus into the bladder. The olive-shaped nozzle of the syringe should be introduced just within the meatus. About two grammes of the liquid is then thrown into the urethra, and retained there by the patient holding his finger over the meatus for about twenty minutes. A strict and temperate diet should be used during the period of the injections.

Some Recent Studies upon the Bacillus Typhosus.—At a recent meeting of the Société Médicale des Hôpitaux, M. Chantemesse presented some interesting statements of the result of his studies, in company with M. Widal, upon the bacillus typhosus—the bacillus of Eberth and Gaffky. It is enlarged at the extremities, extremely mobile, and offers strong resistance to the usual modes of staining. It can be developed in meat-broths, better in gelatin, but best of all upon the potato, upon which it shows itself as a moistened thread after three days, sometimes not until after fifteen days. Slowness of development is specially characteristic of this bacillus. Reproduction takes place readily in pure water, especially if the water be sterilized. It resists cold, and will endure a temperature of 45° C. without perishing. It is destroyed by a temperature of 80° C., as well as by boiling for several minutes. It increases more rapidly in a moist than in a dry soil. As to the action of antiseptics upon its vitality, a $\frac{1}{20000}$ solution of corrosive sublimate will prevent its culture; a $\frac{1}{800}$ of sulphate of quinine will produce the same effect; while the $\frac{1}{400}$ of carbolic acid will have no effect at all upon its multiplication in a culture-fluid. By adding a two-per-cent. solution of hydrochloric acid to the culture the growth of the bacillus is retarded, but it does not die, for, on dropping a little of the fluid containing it into an alkaline broth, it will begin again to multiply with all its original vitality.

A propos to this subject, it is to be noted that M. Dujardin-Beaumetz read a report before a recent meeting of the French Academy of Medicine, in which, after stating the methods of M. Pecholier to jugulate the course of typhoid fever simply by means of quinine and tepid baths, he expressed the hope that the day would soon come when, after a better knowledge of the bacillus typhosus, we shall be able to possess an attenuated virus, permitting us to realize all the expectations now founded upon the proceedings of Pasteur.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, APRIL 30, 1887.

EDITORIAL.

RECTAL INJECTIONS OF CARBONIC ACID GAS FOR PULMONARY DISEASES.

WHEN a new remedy is brought forward or a novel treatment advocated for that opprobrium of medicine, pulmonary consumption, there have never been wanting in its support the reports of cases which have had cough and expectoration reduced, night-sweats checked, and appetite improved, and which have experienced a proportionate gain in flesh and strength. That such results have been actually obtained from various and very diverse plans of treatment cannot be controverted: the files of medical journals contain hundreds of such reports contributed by men whose names are sufficient warrant for accepting the facts just as they are stated. It follows, then, logically, that the beneficial action which is claimed for each, but is exerted by all, cannot be the exclusive property of any. The influence of the mind over the body, especially the therapeutic value of hope, has a better field for demonstration in phthisis, probably, than in any other disease. Moreover, in instituting any plan of treatment the intelligent physician, as a matter of course, also corrects to a greater or less extent the hygienic faults in the mode of life, and this in reality is often of greater remedial value than the medicines which he prescribes with such confidence.

We make these remarks because we consider that these facts should be kept in mind when any new expedient is submitted to the profession for the treatment of consumption. Owing to a peculiar combination of circumstances (in which politics was not entirely absent), reports of the Bergeon method of treating phthisical subjects, which had been for a short time on trial at the Philadelphia Hospital, were prematurely published, with some embellishments, in the daily press, and it was widely heralded as a specific for consumption. Public interest was immediately excited to a remarkable degree, and it at once became a popular and all-absorbing topic for conversation in ball-room and barber-shop, in parlor and kitchen. It percolated into the country papers, and inquiries began to pour in with regard to the so-called "Philadelphia treatment" of consumption. Even the Sunday papers contain large illustrated advertisements of the manufacturers of the new apparatus for the administration of gas. There is evidently now a popular craze upon the subject, which will doubtless be utilized by some members of the profession so as to reap a rich harvest from it while it lasts. But we have sufficient confidence in the intelligence and honesty of the mass of the profession to believe that extravagant hopes will not be encouraged, and that patients will be told that, while some of the symptoms may be relieved by carbonic acid gas, the method is still in its experimental stage, and is by no means a specific, or even certain in its beneficial action. The results which have been claimed for it can be obtained and have been obtained by other means of treatment which have stood the test of experience and are already the property of the profession. Moreover, advices from Paris inform us that the interest there is declining, and that Germain Sée has abandoned this method because the results have not been satisfactory.

The evil following from the manner in which the treatment has been brought before the public is evident in two directions. In the first place, the impression is given that the profession would not so eagerly seek a new treatment if the methods in common use hitherto yielded satis-

factory results. When the reaction comes,—as soon it must,—the confidence of the public in our therapeutical resources will therefore be severely shaken. In the second place, phthisical patients now are not satisfied that everything has been done in their behalf unless they have had their bowels *secundum artem* inflated with gas. If the judgment of the physician condemns this procedure and he refuses to employ it, he runs the risk of either offending his patient or seeing him go to the specialist of the syringe, whose scruples do not interfere with his practice. Would it not be well if our medical societies would take up the ethics of this practice for consideration?

SO-CALLED SURGICAL SCARLATINA.

SINCE Paget in 1864 called the attention of the profession to the scarlatinoid eruptions which occur after injuries and surgical operations, these exanthems, long before observed and occasionally referred to in medical literature, have been the subject of especial study. In England, Jonathan Hutchinson, Hilton, Bryant, Sterling, Goodhart, and others; in France, Trélat, Germain Sée, and Tremblay, have reported cases. In this country, Atkinson made these rashes the subject of an admirable paper read before the American Dermatological Association last year. This observer regards the following conclusions as justified by the facts thus far accumulated:

1. Unprotected persons who have suffered injury or have undergone surgical operations are rather more liable to scarlatina than the unprotected healthy. This increased liability is probably due to diminished power of resistance to disease, and will probably hold with regard to other specific fevers. Scarlet fever is more apt than the other exanthemata to attack such persons, because its influence is usually more wide-spread, and because it varies within such wide limits that it often escapes the attention of those who readily detect other infectious disorders and provide against them.

2. When an epidemic tendency on the part of these eruptions to prevail after injuries and operations is shown, it may be concluded that true scarlatina is present.

3. Septicæmia is occasionally accompanied by a scarlatiniform rash which does not depend upon the scarlatinal poison.

4. Medicinal eruptions, especially those caused by cinchona and its preparations, not infrequently follow injuries and operations. These rashes are often erroneously attributed to true scarlatina and septicæmia.

Quite recently, Hoffa, of Würzburg (*Volkmann's Klin. Vorträge*, No. 292), has gone over the whole subject with great care, both from the clinical and from the bacteriological point of view. He concludes that if the term surgical scarlatina is to be retained at all, it must be restricted to those cases in which the scarlatinal infection has actually taken place by the way of a wound, and that all the other forms of erythema occurring after injuries and surgical operations, which have nothing in common with scarlatina but their color, and which comprise a very large group of the cases, must be designated according to their etiology. In the absence of the concomitant symptoms of scarlet fever, isolation is not required.

THE MECHANICAL TREATMENT OF LUMBAGO.

IN no class of cases is the aid of physiological or so-called mechanical therapeutics more welcome to physicians than in the treatment of chronic muscle- and joint-affections, which are the despair of ordinary therapeutics. Massage, hydrotherapeutics, gymnastics, have a field of usefulness that is second to none in the

relief of disorders of nutrition. It is with pleasure, therefore, that we direct attention to a lecture* which we have just received, in which the successful treatment of lumbago by systematic exercise is demonstrated, and descriptions with illustrations of the simple forms of apparatus employed are given. Dr. Schreiber claims that his experience has shown that every case of lumbago, acute as well as chronic, can be completely cured by mechanical treatment. On the contrary, rest and antiphlogistic applications intensify the affection, increasing the pain and the functional disorder. The apparatus required for the treatment is easily made, and the want of it should not be allowed to interfere with a trial of this method in any given case. Of course the tendency to return will remain, but it cannot become developed if the ordinary means for the prevention of so-called muscular rheumatism are employed by the patient. Among the prophylactic measures of most value we may name due attention to the renal functions, systematic exercise, and the wearing of the abdominal flannel bandage, or "cummerbund," which we have found especially useful.

As some cases of myalgia have been shown to be due to trichinosis, it is important that in any given case a correct diagnosis shall be made before promising the complete cure which Dr. Schreiber assures us from his mechanical treatment.

PROFESSORS NATHAN S. DAVIS, M.D., of Chicago, Dudley S. Reynolds, M.D., of Louisville, Kentucky, Henry H. Smith, M.D., of Philadelphia, and Dr. W. S. W. Ruschenberger, formerly Medical Director of the United States Navy, had the degree of Fellow of the Medico-Chirurgical College conferred upon them by the Trustees of that institution at the annual commencement, held in Philadelphia April 7.

* "Die Mechanische Behandlung der Lumbago," von Dr. J. Schreiber, Aussee-Meran. *Wiener Klinik*, März, 1887.

NOTES FROM SPECIAL CORRESPONDENTS.

PARIS.

SURGICAL Clinics at the Hôtel-Dieu.—Professor Reclus, the eminent surgeon and eloquent speaker, has been giving a series of very interesting clinical lessons on the usual subjects, and also on some that are new and original. These are so well worthy of attention that we can only regret not being able to communicate them in full; but we will try to give the substance of a few of them. First, we may report one on

Molluscum Fibrosum of the Ano-Rectal Region.—He said that the group of tumors of this region called syphilitic, or condylomata, seems on the increase, and if one does not consider them hemorrhoids, polypus, or cancer, he is apt to regard all these cases as syphilomata. He had observed four patients lately in whom it was impossible to make this specific diagnosis from the history, and so he proposes to class them apart and call them "Molluscum Fibrosum." Professor Fournier, speaking of ano-rectal syphilomata, said that the tumor is characterized by a rigid thickening of the intestinal walls, and that this hyperplasia may be as much as ten millimetres in thickness. The mucous membrane is hard, uneven, and raised by vertical columns which invade the region of the sphincters, and which are replaced by a hard cylinder on the margin of the anus. This sort of tumor is indolent, dry, and hard, and is variable in form, while the growths are so regular that they have been called the "condyloma bouquet." This description is no doubt correct, and he holds syphilis responsible for these narrow, thick tumors which are combined with inflammation of the rectum; but he does not think that certain other tumors that are seen in this region are of the same nature: the latter are those Dr. Reclus ventured to name as above. They surround the rectal orifice in the form of a series of excrescences of different forms, some of them like the half of a pea stuck on the skin, and others larger, with a pedicle; others, again, are flat; but no ulceration is seen. Above the sphincter ani are two tumors as large as small cherries; their pedicle is large and long, allowing the neoplasm to leave the intestine during defecation. The margin of the anus resembles the Marguerite daisy with its petals spread out, while the centre is represented by the two polypus-looking tumors. These tumors obstruct the anal orifice, but the mucous membrane is normal; it is not ulcerated nor hardened, nor is the orifice narrowed, as the finger readily enters. The obstacle, however, is painful, and provokes an alternation of constipation and benign dysentery. It would seem from experience that these tumors often

follow a history of anal fissure and dysentery, though not of syphilis.

Dr. Reclus related one of the cases in full, and went on to say that the name of condyloma is an expression which is very uncertain, as it has been employed in so many different diseases. For some authors it implies syphilis; for others it simply means a sort of modified hemorrhoids. Therefore he has adopted the name of "molluscum" for these tumors, owing to their analogy to those of the skin, and both clinical facts and the pathological anatomy of these tumors warrant the name. They are in fact a sort of prolongation of the mucous membrane, soft, and either pendent or round, resembling an empty bag or a grape from which one has taken the seed. The prognosis is not serious, as they mostly remain stationary.

As to treatment, ablation is advised, or, if they are small, the elastic ligature,—both after local anæsthesia with cocaine; this to be followed by cauterization of the base after the tumor has been removed or has fallen off. If they are very large and inserted high up, a more radical operation is needed, such as rectotomy and destruction of the tumors with the thermo-cautery, or perhaps it would be sufficient to make forced dilatation of the rectum and burn them out with the heated platinum wire.

Cystic Disease of the Breast.—Under the name of "La Maladie Kystique des Mamelles," Dr. Reclus designates a cyst of the female breast which he has found to be quite a common disease, although until his writings in 1883 it was but little known; even now it has not reached the modern surgical text-books. Of course, cysts of the breast are extremely common; all the benign and malignant tumors may give rise to such sacs, and the pathological tissues may form cavities of which the volume and nature vary; but the above-named disease, although frequent, has not as yet received a special description.

This form of cystic disease presents two well-defined characters. First, the cysts are in large number and occupy the whole gland. In the usual cysts this is not so; on the contrary, they form a single cyst, which develops in the middle of a sarcoma or a carcinoma, and leaves the rest of the breast healthy. The second character of this newly-described disease is that it is bilateral, both breasts being attacked. It is well known that the other neoplastic growths are only quite exceptionally placed in both breasts. The following is one of the cases which he described: it will serve as a type of the others, of which so far some thirty have been observed.

A lady of 35 years consulted the Professor for a tumor which she found in her left breast, near the lower and inner portion. It was about as large as a pigeon's egg, round, and very hard, and it was difficult to isolate from the tissue around it. About this principal swelling a careful examination showed a number of small nodes, and these were found all over the gland, but in greatest number near the centre, which seemed full of them, like small lead-shot. Pressure gave no pain, and only from time to time was there a dull shooting ache in the gland. The ganglia in the axilla were healthy and not swollen. Broca, Verneuil, Terrier, and others have seen these tumors, and usually diagnosticated malignant growths, and have advised operation at once. The sensation of a number of little, hard portions around the central swelling, giving an idea of bird-shot, is peculiar to this disease. Operation has not been followed by a return of the tumors excised. Dissection of the removed gland shows it is full of cysts, some fifteen to thirty. In some cases the tissue around them was still strong and of the normal color and structure. The color of the fluid contents varies from yellow to coffee-color. M. Mallassez has made a careful histological examination of this tumor. Is it a benign disease? So far the clinical facts answer yes. One lady operated on some six years ago remains well, and others at various dates show no signs of a return; but the pathological anatomists seem to look upon it as malignant, and do not hesitate to pronounce it a form of true cancer, so that the prognosis must be reserved. On the other hand, the clinical facts lately caused Dr. Reclus not to interfere in a case of a young woman who has this disease in a slight form in both breasts, as he did not like to extirpate both breasts, which he felt was the only radical cure.

While on the subject of breast-tumors, we would like to direct attention to the fact, as shown in this clinic, that these glandular tumors may very often be extremely hard, even wooden in feeling, and without fluctuation, and yet not be malignant in character. To determine the nature of such swellings, it is always best to introduce the needle of a small hypodermic syringe and draw off a little of the contents. This operation is painless as a rule, and innocent if the needle be made aseptic by heating it first, while it will often surprise the operator to find the supposed tumor to be simply mastitis or some much slighter form of disease than he feared, no matter how hard it may seem at first.

Tuberculous Infection by the Genital Passages.—Dr. Reclus said that ever since tuberculosis has been classed with the contagious diseases which are inoculable and parasitic in character every one has tried to determine the road that the bacilli take in penetrating the tissues. These *portes d'entrée* must be numerous, including all the solutions of continuity, both traumatic and ulcerous, of the skin, all loss of substance, and all the epithelial desquamations of the digestive and pulmonary tracts. These modes of invasion can-

not be denied since the hypodermic injections made by Professor Villemin and the experiments of Chauveau upon the injection of tuberculous matter. Can this figured element, the bacillus of Koch, also penetrate the organism by the genital passages? Cohnheim and Verneuil asked this question in 1883, and Dr. Charles Fernet has read several papers before the medical societies in late years in which he tries to establish the proposition that primitive genital tuberculosis can probably be caused by direct contagion in sexual intercourse. Professor Reclus asks, Is this possible? Ought we to accept this doctrine without question? Primitive genital tuberculosis undoubtedly exists, as Cruveilhier, Velpeau, and Reclus have given statistics to prove it. In some thirty recent cases on which autopsies were made, pulmonary tuberculosis and the genital form existed in twenty cases, but in the other ten the lesions were found *only* in the sexual organs. The question is, Can these last cases have a local origin? Can it be communicated as in syphilis for instance, where the sexual organ which is infected contaminates the sexual organ that it penetrates or is penetrated by?

M. Verchère, in a late thesis, and M. Fernet both bring up observations trying to prove the affirmative, but in fact their cases only show one thing, and that is that caseation of the sexual organs can be primary; but they do not in any way prove that the hypothesis of direct inoculation by the genitals is correct, while M. Reclus brings a number of cases to prove the contrary. One of these observations was that upon an infant whose epididymis was found infiltrated with tubercular formation. Verneuil also relates such a case. Lloyd saw the cheesy tubercles in a child of three, Dufour in one of eighteen months. Giraldès adds that in children from six to twelve genital tuberculosis is not at all rare. Professor Guyon also found it in female children. It cannot be pretended that at these ages coition is practised.

To return to M. Reclus's statistics: two of his phthisical patients never had had sexual connection; five others were married, but their wives had not been inoculated from their husbands' genital caseation. To pass by the clinical facts and follow Cohnheim and Fernet in their hypothesis on this form of infection, one must admit that Koch's bacillus exists in semen, which is not at all proved, although it is stated that it has been found in urine. In any case, this inoculation should take place in the vagina or at the mouth of the uterus, and it is well known that tubercular ulcerations are extremely rare in those situations, for it is mostly the mucous membrane of the uterus itself and the ovaries that are attacked. M. Reclus cannot believe that the poor, ill spermatozoid can travel so far as this, for it is said that the white globule when infiltrated with germs loses its amœboid movements, and it must be the same for the figured element of the sperm: so tubercular metritis, salpingitis, ovaritis, etc., can hardly be caused in this way. In men's inoculation by women the conditions are not even so favorable: the great length of the urethra from the glans to the parts usually infected, and the fact of frequent passage of urine cleaning out any stray bacilli that may have wandered in, oppose this idea. There is only one possible theory, and it applies to all cases and explains the tubercular affections of children as well as those of adults and very old people; also the lesions found in the spleen, liver, brain, eye, articulations, and bones.

We first must admit that the bacilli penetrate by some fissure in the skin or by some loss of substance from ulceration of the respiratory or digestive tract. They may stop at this point and form a colony; but mostly they get into the vessels, and are carried on either by the lymphatics or the blood itself, and they enter no doubt in the state of spores, for the anærobic bacilli cannot live except in globules charged with oxygen. Sometimes they leave the circulation, owing to the rupture of some vessel which pours them into the web of the tissues, or else the leucocytes carry them out with them by diapedesis. They are often sterile, or at least they fall into the middle of vigorous anatomical elements that are able to defend themselves against these attacks; but should the tissue in question have the slightest taint or organic fault, an active proliferation takes place at this point, which becomes the seat of primitive or primary tuberculosis, that may remain local, or, later, invade other parts of the organism.

Chlorate of Potash in Cancer.—We must mention, in closing this account of M. Reclus's clinics, that some very remarkable results are being obtained there in the treatment of cancer by chlorate of potash. The matter is still under investigation, however, and it will most likely be treated upon at length by the professor before long, when we will give further details.

Professor Potain on Treatment of Reflex Disturbances of Gastric Origin.—"The different forms of gastralgia determine quite often a series of troubles that should be well understood in order to treat them rationally. Among the organs that are most often affected are, first of all, the heart and the lungs. It will be readily understood that the distention of the stomach after a copious meal can push up the diaphragm, diminish the capacity of the thoracic cage, and interfere with the functions of the organs which it contains, while at the same time the large quantity of liquids thrown into the circulation during digestion fills up beyond measure the circulatory system, and forces the heart into an excess of work which it cannot attend to. One can also well be-

lieve that these disturbances have a chemical origin. All know that the stomach is a vast manufactory where a number of chemical products are produced. When digestion is normal and regular, these substances which it gives birth to have no disturbing action, as they are absorbed and act exclusively in repairing the losses of the organism; but if the digestion be abnormal it permits the absorption of substances which are not fully elaborated, and which are sometimes toxic: such are the leucomaines. Dilatation of the stomach with paresis of its muscular tissues, which has been so well shown by Professor Bouchard, is also a powerful cause of this defective elaboration of the alimentary products, and this has for effect an irritability of the nervous system which produces the reflex phenomena which your dyspeptics will complain of so often. A third and most important cause is the reflex influence exercised by the mucous membrane of the stomach by contact alone of the aliments. The appearance of phenomena at the very moment of ingestion of food in small quantity, before any fermentation has taken place, is of itself quite sufficient to prove this and demonstrate the reality of the influence. The appearance of the reflex pains should not surprise us, as they are first of all quite normal. The tension of the blood is augmented by the liquids of digestion which are thrown into the circulation, and then these in a reflex way give notice, as it were, to the system to receive an influx. All have noticed the redness of the face that accompanies digestion. This is caused by the dilatation of the peripheric vessels to receive the overplus of liquid in the circulation. Suppose, then, an exaggeration of this normal reflex, and then that it should extend to the brain. Migraine, amblyopia, and vertigo would be among the consequences. If it goes to the lungs, then the respiration is interfered with. These normal reflex actions can be diminished as well as augmented. For instance, they are not seen at all when the mucous membrane is the seat of serious lesions, such as ulcer of the stomach, cancer, etc. In regard to the direction that these reflex pains may take, there must be an individual predisposition, either congenital or acquired. Each us of has certain parts of the body more sensitive than others, a *locus minoris resistentiæ*, and it is this point that first comes under the influence of the reflex. Some of these manifestations can be ranged under those inhibitory acts which have been so much spoken of since they were indicated by Brown-Séquard. Take the case of a man who loses his memory in the middle of a meal, and another who after a good dinner becomes impotent, and so on: inhibition can explain but few of these phenomena, for the larger part of them depend on vaso-motor disorders, and these, again, may affect either the vaso-constrictors or the vaso-dilators: indeed, it is a delicate question, often, to say which, in any given case. But as to treatment of these painful maladies: as they are caused by the stomach, its treatment is first of all to be attended to. If the pathological irritation be produced by the presence of some vitiated secretion or badly-digested aliments, then use emetics, washing of the stomach, or purgatives. The alimentary régime is important: order little and often of very digestible substances, and no large meals at any time; watch out for the dentition, as many dyspeptic accidents have as a cause insufficient mastication; give in certain cases milk only as food, to diminish the excitability of the gastric mucous membrane, and absorbing powders, such as prepared chalk, charcoal, phosphate of lime, etc. As the nervous system is often at fault, bromides are suggested, but they are often badly supported by the stomach. They can, however, be used per rectum, in which case hydrobromate of ammonium is the best. One gramme of this salt in a half-pint of water may be injected twice a day, and it will give great relief. Where there is a tendency to nervous depression, valerian in large doses is to be preferred. When the suffering is very intense, for a few days hypodermic injections of morphine hydrochlorate may be used. Then, as to the organ in which is the seat of reflex pain, there is no reason why local medication, by derivation or refrigeration, should not be tried, combined with repose; also the cramps of the calf of the leg may be treated by friction or massage. Pains resembling those of angina pectoris can be cured often by simply putting the hands in warm water, or by giving saturated chloroform-water internally; but, as a rule, great care must be taken not to give preparations of digitalis (which are so often employed for palpitations that are of gastric origin), for this is almost always useless, and it will not calm the pains; most of you know that real heart-pains do not exist. Digitalis may, however, be used in those serious cases of gastric origin where the cardiac dilatation has attained a high degree and it has lasted for a long time; but even here it must be used with caution, much more so than when it is given in heart-diseases which are primarily endocardiac."

When is the Proper Time to give Medicines?—Professor G. Sée made some practical remarks at his clinic to-day that are quite different in some respects from the teachings of the books, and also from custom; but, as they are the results of his nearly forty years' experience in hospitals, they can be followed with certainty. "When is the exact moment to give drugs so that the system will best accept them? There are a few that may be given any time you like, but these are the exception."

Cod-Liver Oil.—"What causes absorption of this oil? The action of the pancreatic and hepatic secretions. Given fasting, it will

most likely cause vomiting, as the juices are not present; for secretion only commences when there is something in the stomach. Children take it well, and the reason is that in them the sense of taste is imperfect. It must be given, then, so that it will pass quickly on to where it can meet the pancreatic juice: so give it *at meals, just after taking soup;* and it can also, curious to say, be well digested without any 'returns,' if taken the last thing at night on going to bed. Cod-liver oil contains fatty acids, more so than any other oil, and absorption proceeds better with it, as an emulsion is not so much needed as in other oils."

Emetics.—"When the intention is to have only mucus vomited, give these fasting; but in indigestion, etc., exhibit *after* eating, so that there will be something to vomit."

Purgatives.—"Here there must be a division. Carlsbad, Hunyadi János, and such like purgative waters should be given at once on rising, and always in *hot water*, to precipitate the elements; if given cold they are often vomited. Magnesia salts, on the other hand, require time, and should be taken at night. Next we come to purgatives that must *never be given fasting:* these are the drastics, such as jalap, aloes, etc." (Here Dr. Sée tells a funny story of his young days, when patients were few and far between, and he got one to whom he ordered a compound aloes pill, with other things, and ordered it to be taken before each meal, with the result that the unfortunate patient had a vomiting-fit each time, and sent at once for the doctor's bill and requested him not to call any more.) "These, then, should be given 'in the middle of a meal;' don't say *during*, for, like *before* a meal, many people want to know the exact moment, and don't understand if you mean an hour before meals or at meals: so be very precise."

Mineral Waters.—Dr. Sée condemns the usual custom of putting these into the wine which is drunk at table, and he says they spoil both the wine and the digestion. He calls attention to the fact that at Vichy, and all the mineral-water stations, the water is always given fasting and some time before a meal. The object being to increase the secretion of the gastric juice, they must be given before meals,—and not just before, but *at least half an hour before.* Vichy, administered in this way, gives better results than when it is used to turn red wine into a sort of ink.

Bitters, cinchona wines, etc., are what are called tonics, on account of the tannin that exists in them: these and acids should be taken *just at dessert*, when the meal is almost over; certainly never before meals.

Iron.—It will precipitate the gastric juice taken before meals, therefore take it when there is something in the stomach to prevent this. It is not known how it gets into the circulation, because it is not seen to go out. In any case, give it *with meals.*

Pepsine.—In supposing that there is some virtue in pepsine, which has not been proved, it should be given just at the end of a meal to assist the digestion of it.

Antiseptic Powder as given for Intestinal Antisepsis in Typhoid Fevers in Paris.—

℞ Naphthalin.,
Pulv. sacchari, āā 5 Gr.;
Ess. menthæ, 2 gtt. M.
Div. in chartulas No. xx.
S.—Give two to four papers per day.

THOMAS LINN, M.D.

PARIS, March 28, 1887.

PROCEEDINGS OF SOCIETIES.

PHILADELPHIA NEUROLOGICAL SOCIETY.

FEBRUARY 28, 1887.

(Continued from page 487.)

DISCUSSION ON MORAL IMBECILITY.

DR. H. C. WOOD: Whether we call these cases examples of moral imbecility or give them some other name, we must recognize that there is a depravity which is the result of heredity or some imperfect development of the nervous system. I recently had under my notice a case which parallels those reported by Dr. Kerlin. A woman belonging to a respectable family went astray at a very early age and became the mistress of a married man, bore eight children, and died a drunkard in the gutter at the age of twenty-eight. Of the eight children, all, with the exception of one, perished in infancy. At the death of the mother, this child, a very young girl, was taken by a friend, who endeavored to train her in a respectable manner. The attempt seemed to be successful until the age of thirteen was reached, when, three months before the appearance of menstruation, she ran away and was found in a house of prostitution. Since then her history has been a constant effort to save her and a constant return to bad sexual habits. It finally became necessary to place her in the House of Refuge. There was no tendency to drink in this instance, so that the love of liquor had no part in the precocious, overpowering sexual desires.

Dr. E. N. BRUSH: I was much interested in the graphic description of these cases. I had the opportunity of seeing one of them at the institution at Elwyn. The history of the young woman brings to mind a case which had gone, as Dr. Kerlin says they may do, a little farther. The girl not only became a public prostitute, but had passed into a condition of marked insanity. The mental disturbance was as

much in the line of moral obliquity as anything else. She was very active in causing mischief among the attendants and other patients at the asylum. At one of the visits of a committee of inspection she trumped up a story that the engineer, the apothecary, and one of the physicians had come to her room at night and violated her person. She got one old gentleman very much interested in her case, but before he got through with his investigation she disgusted him by making a similar charge against him.

Dr. CHARLES K. MILLS: I believe that the term moral imbecility is a good one to apply to a certain line of cases, as it has a distinctive meaning. From my experience outside of institutions I could give at least a score of cases similar to those described by Dr. Kerlin. Some of these cases have been in asylums, some have been in prisons or houses of refuge, and some have been in both. I recall one case, now in the Eastern Penitentiary, which has been in three asylums and in three or four penal institutions. A case recently sent to the Pennsylvania Hospital for the Insane by Dr. Wood and myself presents some of the elements which have been mentioned by Dr. Kerlin,—some of the peculiarities seen in the first case reported by him, although not to the same degree. In addition, she had actual spells of mental excitement, possibly a mild form of mania. In the case of a boy recently seen, as in this case, there was a distinct history of neurotic conditions and of insanity in other members of the family. Almost all cases of this kind show a marked element of heredity.

As I have stated, I am a believer in moral insanity as I understand the term, although I do not consider this term a good one, especially for medico-legal purposes. I have been asked on other occasions to produce the cases. Dr. Kerlin has produced four to-night. I think that the members of this Society could bring forward a large number of other cases. The question is not whether or not these subjects have any intellectual aberration at all, but whether or not the moral aberration vastly predominates. If so, the cases should be classed under moral imbecility or moral insanity, whether or not these terms are the best for technical purposes.

Dr. JAMES HENDRIE LLOYD: I unfortunately heard only a small portion of Dr. Kerlin's paper. I think that in the discussion of this question, especially in its practical bearing upon the cases that come before the courts, medical experts are in danger of confounding depravity with insanity. There is a decided distinction between these two. I have always maintained that the mere metaphysical abstraction of moral insanity was an unphilosophical one. Practically we never find a case of a pure moral lesion. There is always an intellectual defect, and frequently a marked congenital defect of the whole brain-organization. We unfortunately know very little of the physical basis of thought, and, until we do know more about this, it seems to me that it is futile to try to make abstract distinctions between moral insanity and depravity. This tendency was probably inherited from the pseudo-psychologists who combated the idea of Locke in regard to the action of the human understanding. I myself do not believe in true moral insanity. In the last case reported, if there were no evidence of mental defect it seems to me a misnomer to call the boy an imbecile. If the boy was full of depravity, and if he had committed a crime, it would be difficult to acquit him before an intelligent jury. I suppose Dr. Kerlin would not claim that he was without intellectual defect.

Dr. FRANCIS X. DERCUM: I think that Dr. Lloyd is correct as regards the unphilosophical character of the term moral imbecility or moral insanity as used in the *abstract* sense. At the same time I can conceive of cases such as Dr. Kerlin has reported. As man ascended from the savage state, the moral faculties were the last developed. Their highest development is inseparably connected with the more intimate social relations demanded by civilization, and is therefore of comparatively recent origin. Now, I can conceive of a child in whom the reasoning powers and the other faculties were developed to an average degree, just as in the savage, and in whom the moral faculties were undeveloped. I believe that in these cases there is a structural and incurable defect,—a morphological defect.

Dr. HARRIET BROOKE: There is in the Woman's Insane Department of the Philadelphia Hospital a young woman, sixteen years of age. She is intellectually very bright. She works efficiently about the ward, and visitors are surprised to learn that she is insane. She has, however, a most violent temper, she steals, she is untruthful, she is cruel, and, when she is crossed, becomes so violent that she takes anything within her reach and throws it at those around her. At such times she is perfectly irrational. When brought to the hospital by her mother and her sister, the latter volunteered the statement that on the father's side there was no insanity, but that the mother of the girl was the only one of the mother's family that was not insane. The sister had herself been insane twice. This case seems to belong to this group of moral insanity.

Dr. ISAAC N. KERLIN: We will be more grateful to Dr. Lloyd if for the terms moral insanity and moral imbecility he will give us expressions defining any better the conditions which we find in a large percentage of so-called feeble-minded persons in many of the commitments to houses of refuge, and in a larger proportion still of those found in such institutions as the Reformatory at Elmira, New York.

Is not the difference between those who argue for and against moral insanity a disagreement about a name, rather than about the existence of a condition accepted by most Germans and many English writers on psychiatry, and supported by Ray, Spitzka, Bannister, and many others in America?

During the past few years there seems to be a growing advance in sentiment among our profession and in the public mind with reference to this subject. Seven years ago a paper read at Lincoln, Illinois, reporting several cases of moral imbecility under the title "Juvenile Insanity," was so thoroughly misunderstood that a discussion followed showing that the gentlemen present had applied the phenomena of *excitable idiocy* to the suggestions of the paper. The idea of a congenital incapacity to receive and act upon moral impressions in any other than the lowest grades of intellectual idiocy was not comprehended. Two years ago I wrote to the non-medical superintendent of one of our houses of refuge, sketching a few of our moral imbeciles, and asking if there were cases corresponding with these in that institution. The question was studiously avoided by that gentleman until an experience had with a case recently sent to him from our Elwyn institution, whereupon I received an ample reply confirming the impression I had formed. A medical officer of the same refuge, within the last few days, examined critically the inmates of the latter institution, and is of the opinion that not a few are moral imbeciles. Dr. Brockway, of the Elmira Reformatory, states that he discovers among his prisoners only six per cent. in whom the moral sense is normal. He prefers to speak of many of his cases as moral imbeciles. It is true that we are using this term for the want of something better; but it certainly defines to the common understanding a class of individuals in whom there is a lack of self-control, a weak volition, and failure in, if not an absence of, the higher elements of a full cerebral development, for which we know no more suitable appellation than moral imbecility.

Adopting these views, their practical application soon comes, in a sequestration of many whose liberty now is only a vicious license. The tendency at our own institution is towards life-detention of all such cases. We refuse for them the ordinary routine of education, because we believe that in educating moral imbecility after the current notions of education we are training experts who may afterwards figure in the rôle of so-called moral insanity; that by giving such subjects any considerable *school* education we are only arming them for more serious exhibitions of evil. It is a radical, often inherited, condition, just as incurable as inherited forms of idiocy or intellectual imbecility. When we shall arrive at this definite conclusion about cranks, habitual drunkards, and the like, and fully apply it, and when we introduce the indeterminate sentence for crime, such sequestration of the morally and socially unfit will be brought about that our human stock will be improved by keeping out of the national blood some terribly bad strains.

It is a noteworthy fact that in most, if not all, the cases which we have determined to be moral imbeciles, there is a neurotic history in the family antecedents; epilepsy, monomanias, inebriety, crime, are frequently the correlative exhibitions in families from which proceed these children of keen intellectual precocities, but inveterate tendencies to vagrancy, prostitution, and lawlessness.

Dr. JAMES HENDRIE LLOYD: With reference to inventing another name for moral insanity, I would say that I do not believe that the condition exists, and therefore I cannot name it. In the last case described by Dr. Kerlin I believe that there is something more than a moral defect. There is something wrong with the intellect. The term moral insanity I consider a misnomer. Guiteau was said to be the subject of moral insanity. The name that I should apply to him would be criminal. As I did not hear the paper, I do not wish to be considered as criticising it. I refer to the subject in general, especially as it concerns the insane and those who are claimed to be insane.

Dr. CHARLES K. MILLS: Dr. Kerlin in his remarks very clearly brought out the strong points in this question; but I believe that Dr. Lloyd's remarks show that he is astray as to the origin of the facts which some of us have been studying. There may be some who believe in this moral imbecility or moral insanity from the stand-point of the pseudo-psychologist, but I do not know these false theorists. The point that I make is this: that Dr. Kerlin, who for twenty-five years or more has been among idiots and imbeciles, and who has studied them in the concrete,—who has seen scores or hundreds where others have seen units,—has come to his conclusions from a different stand-point. Another point in Dr. Kerlin's remarks was in regard to the question of control. Perhaps the very best legal criteria of responsibility that have ever been given are those formulated by Sir Fitz-James Stephens. Among these, certain have reference to the ability to distinguish between right and wrong, not only in the abstract, but in the particular instance; and a higher criterion, which is gradually coming to be included by others,—namely, that a person who does a homicidal or criminal act has lost the power of controlling his actions. I believe that some of his acts are just as much beyond the control of the moral imbecile as are the acts of the hallucinatory lunatic who cannot resist doing that to which he is bidden by a hidden voice. I believe that any one who studies closely many of these cases will come to the same conclusion.

The next paper, by W. A. WILMARTH, M.D., Assistant Superintendent of the Pennsylvania Institution for Feeble-Minded Children, was on

THE PATHOLOGY OF IDIOCY.

The following is an abstract of the paper:

The literature of idiocy consists of scattered reports of post-mortem examinations in institution reports and incidental notes in treatises on disease of the nervous system. I have drawn the material for this evening's paper largely from our own post-mortem records, illustrating the cases presented by photographs and actual specimens of lesions and malformations described, and introducing such facts as I have been able to glean from the above-mentioned sources.

Among the causes which may produce mental defect may be mentioned destruction or non-development of a considerable portion of the cerebral cortex; absence or destruction of important commissural tracts; destruction of the organs of special sense or of their ingoing tracts, preventing the reception of impressions from without; disease of the cerebral vessels, with consequent interference with the nutrition of the ganglionic cells, so necessary for their proper functional activity; atrophy and hypertrophy of the brain, and pressure from cerebral effusion.

ANALYSIS OF FORTY CASES.

Anomalies of the Skull.—Hypertrophy of the skull was seen in five instances, while the bone was unusually thin in three cases. Deformity of the base, especially about those portions of the ethmoid and sphenoid bones which go to make the base of the skull, exists in nearly all congenital cases. This is regarded by Ireland more as a proof of misdirected formative power than as bearing any distinct relation to the mental hebetude.

Adhesion of the membranes, with or without apparent thickening, and varying in extent from a very small localized area to a complete adhesion, exists in forty per cent. of our cases. The post-mortem records at Longenhagen, Hanover (thirteen cases), describe this lesion as existing in 84.6 per cent. of cases.

The average weight of the forty brains was thirty-seven ounces; of the cerebrum, thirty-one ounces; of the cerebellum, 4.40 ounces; of the pons and medulla, a little less than one ounce. The weight of the cerebellum bears a relatively high proportion to the weight of the cerebrum, but bears no relation to the mental state of the individual. Whenever early and extensive paralysis had existed, the cerebellum was generally small.

The frontal lobes very generally appear small, especially in cases of the congenitally feeble-minded. This is evidenced by the short proportionate length of thin lobes measured along its superior border, and by the frequent exposure of the insula by the imperfect development of its lower convolution.

Defect of the commissural system is common. In the corpus callosum it was found in three instances; in the middle commissure in four cases. The posterior and optic commissures were absent in one case.

Irregular arrangement of the fissures and convolutions, consisting of a decided departure from their usual plan, is occasionally seen; confluence of the principal fissures, and more frequently still of the secondary fissures, is common. In about ten per cent. of our forty cases a strong tendency of the fissures to assume a vertical position is shown; the Sylvian or superior temporal convolution may be prolonged to the superior border of the hemisphere, or long, deep fissures may be found in unusual places, where all the fissures whose natural direction is vertical become strongly marked. All these appearances are most marked in children of a low grade of intelligence, and may probably be regarded as an evidence of misdirected formative growth. In two cases of "Mongolian" type of imbeciles the cerebrum in each case was found well developed in its relative proportion, the cerebellum smaller than usual, while the pons and medulla reached only about half the usual weight. No microscopic examination has as yet been made.

General atrophy was found in one case, and internal hydrocephalus with flattening of the convolutions from internal pressure in one instance.

Among the *microscopic appearances* found in idiocy were relative sparseness of ganglionic cells, disproportionate thickness of the outer barren layer, and the presence of nuclear bodies surrounded by a little granular protoplasm, and contained in clear, round spaces in the neuroglia, described by Spitzka. Degenerated and abortive ganglionic nerve-cells, increased density of the neuroglia with abundance of small round cells, thickening of the walls of the blood-vessels, which are sometimes dilated in places, again contracted or occluded. Sclerosis of all degrees of progress. Atrophy of nerve-fibres of the white substance. In at least three cases such destruction of the ganglionic cells in portions of the cortical substance, with condensation of the connective tissue, and in one instance deposit of crystals from absorption of effused blood, that it seems doubtful if any functional activity remained in the affected parts.

Specimens were shown illustrating atrophy of convolution from pressure of bony plates in the dura mater, with malformation of occipital lobes; destructive lesion of frontal lobes, with non-development of the insula and other portions of the hemispheres; also a microcephalic brain, with arrested development of convolutions and general atrophy; another, a fairly well formed brain from an idiot of the lowest grade, where apparent non-development of the cortical substance of portions of both hemispheres existed.

DISCUSSION.

Dr. FRANCIS X. DERCUM: This is certainly a remarkable and interesting paper. I notice that in one of the specimens sent around there is a convolution which I have not seen in any of the brains which I have examined, and this is the inferior internal *pli de passage*. This brings to mind a speculation of my own. It occurred to me, Why should we have a convolution such as the internal *pli de passage*? It is found in monkeys of low grade. Why should we find this convolution recurring in the human brain? It seemed to me that if there be some inherent defect in the power of development of the cerebral vesicles, that defect must make itself most manifest along certain lines. Thus there will be a tendency to absence of certain portions. This defect would be made more evident if the cranium ossified too soon. In such case we should expect the appearance of transverse and perpendicular fissures corresponding to what is found in the brains of monkeys. The question then arises, Why is it that we have ape-like convolutions present? It seems to me that if any one part be suppressed, the brain being a balanced whole, some other part must be developed, and, therefore, ape-like convolutions are necessitated by ape-like fissures.

Dr. CHARLES K. MILLS: The work at the Pennsylvania Institution for Feeble-Minded Children is of great value, not only for what it is, but for what it will lead to and suggest. I have always said that as much can be done towards settling the problems of localization in an asylum for idiots as by experiments on animals or by any form of experimental work, although I do not by any means disregard the value of such experiments. The facts brought out in a general way by this paper show the possibility of our eventually getting at a wider and fuller differentiation of the faculties or so-called faculties of the brain beyond mere motor and sensory localization. As Dr. Wilmarth referred to Dr. Benedikt, it may be interesting to state that about eight months ago I received a letter from Dr. Benedikt, in which he says that he does not advocate the idea that there is an absolutely fixed type of criminal brain, but his observations tend to show that peculiarities of fissures and convolutions occur in low-type brains, and special peculiarities in certain cases.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

A STATED meeting of the College of Physicians was held March 2, 1887, the President, S. WEIR MITCHELL, M.D., in the chair.

DISCUSSION ON DR. RANDOLPH'S PAPER (page 502).

Dr. S. WEIR MITCHELL: The remark that with fatigue comes an increasing tendency to convulsive or useless acts of facial or other muscles is interesting. It seems to show that with feebleness comes increasing waste by overflow of motor energy on to distant ganglia. Perhaps in all states of weakness there is more or less of this tendency. Admitting the accuracy of Dr. Randolph's facts, their explanation is difficult. It may be that the overflow of energy on to symmetrically related centres, or on to others, is competent to weaken them without being strong enough to cause motion; and whether this occurs as regards the opposite hemisphere, or only as regards opposite spinal centres, is hard to say.

(As an illustration, we may by a key close the current of two batteries, A and B, each competent to set in motion a mechanism. Resistances on the one circuit, A, so interfere as to lessen the flow of energy below what will move the mechanism. Meanwhile, the other battery, B, runs to exhaustion. At last we call on battery A for a repetition of the full work done by B, and find A unable to effect the same work as that done by B, on account of having been partially disabled by its previous ineffective waste of energy.

We are free to speculate as to the relative failure of one hand, the last in use, as due to there being but one centre originative of will-signals to the lower ganglia, and itself capable of fatigue. If, however, we entertain any such view, it might be in a measure tested by exacting work from a non-symmetrical pair of limbs, as a foot and hand.

I incline towards the use of the overflow theory to explain the lowered capacity for work by one hand after exhaustion of the other. It would explain why in consentaneous use of two symmetrical parts more work is done than when they follow one the other. The overflow would be in this case valuable, and not damaging or wasteful. This leads me to relate an experiment which Dr. M. Lewis and myself left out of our paper on knee-jerk, but of which I am now sure enough to speak. When we use the maximum power of one hand on a dynamometer, the coinstantaneous use of the other hand adds nothing to the result; and this form of experiment has been commonly used as a test of the reinforcing capacity of the opposite member. If, however, using two fingers or the grip of the thigh adductors on the bulb of a mercurial dynamometer until great exhaustion occurs, and we then make a new effort at the moment of violent use of another member, the mercury leaps quite to the level attained during the first effort by unfatigued muscles. It does not seem easy to explain this fact except by assuming that the overflow of energy usually wasted is in this case made efficient.

The question of muscular, and indeed of ganglionic, tone is brought forward in an interesting way by this experiment. When we strike the patellar tendon, a sudden, distant,

voluntary act adds reinforcement. What is it that happens to the muscle or ganglion so influenced? Is it made more sensitive to impressions, or with this is there a slight flow upon it of motor energy? And if so, can we measure the effect, and thus influence what we conceive of as muscular tone?

For some time I have been engaged in discovering if these reinforcements do cause motion,—*i.e.*, a slight preparatory muscular contraction, making the subsequent volition or other excitatory activity more potent in its results.

I have been able so far to prove that in some spastic cases distant muscular effort, such as a grimace, really causes distinct and measurable movement in the extensors of the thigh, and presumably elsewhere. This interesting discovery has been confirmed in New York and at Harvard. Whether in *normal* man remote motion is thus capable of causing slight shortening of all other muscles does not as yet seem clear. In my own experiments I obtained what seemed to be the same but slighter results than such as were seen in spastic paralysis, and hope very soon to solve doubts and to be able to state my conclusions in more decisive shape. Upon what these may be will depend much of our hope as to realizing clearly the true nature of muscular tone.

We often speak of nerve-power as if there were a common stock from which are drawn the supplies needed by every active organ, and reason that it is unwise to try to carry on at once two functions which exact large expenditures, as digestion and intense thought, or digestion and exercise. Practically, the difficulty may be one chiefly of blood-supply. This is illustrated in the not rare fact that some feeble people cannot digest except when at rest. These facts suggest the idea that perhaps Dr. Randolph's cases would lose ten per cent. of mechanical capacity after a period of exhausting mental labor or during digestion.

Dr. H. C. Wood: The old theory which was used to explain the principle of counter-irritation was that there is a certain amount of nerve-force in the system, and that when, by means of counter-irritation, the nerve-force is drawn to a distant point, it is removed from the inflamed part. Modern science does not recognize the truth of this theory, but it looks to me as though there is a certain amount of truth in it. Every one who has worked in a gymnasium will recall the fact that he cannot use the two hands simultaneously with the same force as he can when the two hands are used separately. A man who can put up a fifty-pound dumb-bell with the right hand and a fifty-pound dumb-bell with the left hand cannot at one time put up a fifty-pound dumb-bell with each hand. This shows some relation between the nerve-centres which we have not as yet gotten at. Dr. Randolph's contribution is an important one looking towards a final solution of this question, but I think that it has not gone far enough to enable us to form any theories with sufficient grounds on which they may rest to hope that the theories are correct.

I believe that when we use our muscles vigorously two kinds of fatigue are produced. There is a local fatigue and a general fatigue. If a man uses the right arm vigorously, he fatigues not only the right arm, but also the whole body. I believe that if these investigations are continued it will be found that after prolonged use of the leg there will be loss of power in the arm, perhaps as great as after previous use of the other arm.

Of course there is a temptation to speculate upon these facts, but the matter must be carried further before speculation will amount to anything. As suggested by Dr. Mitchell, the relation between muscular exertion and mental exercise should be studied. Every one knows by personal experience that when mentally fatigued he is incapable of performing the usual amount of physical labor. This is probably independent of any question of overflow, and goes back to the higher cerebral centres and their relation.

Dr. Charles K. Mills: It seemed to me, while listening to the reading of this paper, that certain well-known clinical facts in cases of brain-disease have some relation to the subject under consideration. For instance, an old hemiplegic, if examined carefully, will be found to have not only the decided loss of power and accompanying conditions resulting from the lesion on the opposite side of the brain, but also a certain diminution of strength in the limbs of the other side, a condition which is not entirely due to the general loss of physical power present. The phenomena which are exhibited by certain spastic cases, or certain cases of unilateral spasm, also seem to me to have some relation to this subject. I have carefully studied the histories of certain cases of spasmodic infantile hemiplegia. In some of these cases the autopsy has subsequently shown the existence of an irritative, destructive lesion in one hemisphere of the brain. If these cases are carefully studied, it will be found that in not a few the spasm has first appeared in one limb, or in a portion of one limb, or in the muscles of one side of the body. After the lapse of months or years, the spasms increase and involve the whole of the original side, and after a time the other side.

We have other illustrations of the same idea in cases of dural spasm, of which there is at the present time an instance in Blockley Hospital, where the spasm was shown by operation to be due to irritation of the dura mater. In this case, and in another on which trephining was performed, the spasms were at different times unilateral and bilateral. Any number of illustrations of this kind could be

adduced from clinical experience. They show that a lesion strictly local, involving only one hemisphere and only a limited portion of that hemisphere, will give rise to local spasms, and after a time to general spasms, the other hemisphere never becoming involved in any direct pathological process. Radiation of irritation from lower centres may, however, explain some of these cases.

Dr. H. HARTSHORNE: I have given some thought to this interesting subject, looking at it from rather a different point of view from that presented so far to-night. The experiments of Dr. Randolph seem to confirm the conclusions of Drs. Mitchell and Lewis quite distinctly, but there is, I think, a great deal more than that in them. They show that there is not that differentiation of centres which has been asserted,—that there is not an insulation, as we may say, of the centres. I should say there is co-ordination and unity more than mere sympathy, especially of those of the two sides of the brain and of the spinal cord. With regard to the brain, we are all aware that our consciousness attests this unity, which is perceptional and volitional. Some simple evidence on this point is familiar to us. How is it that, with the eyes shut, we can place any finger of one hand against the corresponding finger of the other hand? This must be done solely under central guidance. With reference to Dr. Wood's illustration, it seems to me that the inability to lift two heavy weights at the same time is due not to the greater difficulty in the use of the muscles, but to the physical inconvenience owing to the structure of the body. It is awkward. The experiments of Dr. Randolph certainly point the other way. There is another curious experiment which I have frequently repeated. If you write on a blackboard with both hands at once, I believe that you can write your name more readily and certainly backward with the left hand than when the left hand is used by itself. You do not need to pay more attention to one hand than to the other. Here is an example of bilateral unity of volition.

The first result of Dr. Randolph I should explain very much as is done by Dr. Wood: that is, that there is a certain amount only of available dynamic energy at any one time and place, and if that is drawn upon the general sum of dynamic energy, and especially the energy in that particular part, is diminished. When one hand has done all that it can do, the sum of the energy is lessened, and if there is a repetition of the work by the other hand, the amount is less than it would have been if there had been this consumption of power.

The second result is even more interesting, and I think involves psychical factors as well as those which are purely physiological. It does not seem to me that intracranial processes include all in explaining these results. The energy belonging to the spinal centres has to do with forming the sum total of available energy at the time. In explaining the fact that the two hands working together perform more work without exhaustion than when they are used one after the other, there seem to be two other factors, attention and voluntary inhibition. We all know that fatigue is caused by attention. Dr. Randolph spoke of eye-strain; that is also brain-strain. It is said that those who, in working the submarine cable, translate the messages by watching the flash only of light from a mirror, are able to work one hour at a time. The physical effect of attention is shown by a curious experience which has been published in the journals: that is, that if a light be placed near enough to the eye to affect the pupil, yet allowing the subject to see beyond, it was repeatedly observed that if the attention was directed to the light the contraction of the pupil was decidedly greater than when the attention was directed to something beyond. There are also some curious results reported not long ago by Raggi. In experimenting with faint sounds, such as the ticking of a watch in a room where all was silent, he found that there were intervals when no sound was heard. These periods were as long as from seven to twenty-two seconds. The period during which there was audition was from seven to fifteen seconds.

Taking the view which I have already expressed in regard to the unity or co-ordination of the cerebral and spinal centres of the whole cerebro-spinal axis, it may be that the natural and spontaneous method of volition is for the impulse to descend and distribute itself symmetrically to the two sides, and that attention is necessary to prevent this and to make its direction oblique and concentrate it upon one side, and as a result of this effort of attention fatigue is induced.

I am not a believer in the normal functional inhibition of nerves, although this view is held by most authorities. It is apparent that we have three kinds of inhibition: one of the lower centres by the higher, the spinal axis by the brain; another form is pathological, of which there are many instances; and the third form is voluntary inhibition. I need say nothing more in the way of illustration than to refer to the great fatigue or strain which is induced by the effort to restrain strong emotions. There are some circumstances under which it is the hardest thing possible to keep still. That is what I mean by voluntary inhibition. If it be true, as I have conjectured, that there is this normal symmetrical mode of volitional action from the brain downward through the spinal cord to the two sides rather than to one side, there is need to restrain the one not allowed to act. This effort to restrain one side is a draft upon the cerebro-spinal energy, and this involves some fatigue, and thus there is less power if

one act follows the other than if both acts are performed at the same time.

It seems to me that the greatest importance of such observations consists in their effect in modifying the idea which was formerly held as to the meaning of the term "nerve-centre." Long ago Flourens suggested that there is an equivalence of function for all parts of the brain. This view, of course, cannot be held. Later, Brown-Séquard formulated the idea that one hemisphere might do all that the whole brain could do, not in power and endurance, but in function. There has been published within a year a work by Luciani and Seppili on cerebral localization, in which they very clearly point out that a centre is not a point or a cell, or a collection of a few cells; but the idea might be illustrated by our use of the terms "centre of business," or "centre of fashionable residences:" while the business may be conducted largely in one locality, still it is not confined to that part. In one of the diagrams of the authors mentioned, the visual centre is shown by a dark place, the central portion of which is the darkest. This view explains many experiments where the destruction of what is called a centre does not prevent the performance of the function belonging to that centre. It seems to me to be an important advance in nerve-physiology to get rid of the idea of the insulation of centres.

Such experiments as those of Dr. Randolph are of great interest in connection with pure physiology, and also in connection with psycho-physiology, which has now almost displaced the old psychology in the schools, and which occupies a large part of the attention of both physiologists and psychologists.

Dr. FRANCIS X. DERCUM: The thoughts that suggest themselves to me have in a large part been embodied in what Dr. Wood has said and in the latter part of the remarks of Dr. Hartshorne. I think it extremely probable, and have so expressed myself in a paper read before the American Neurological Society, that the nerve-centres are not centres defined with anatomical and mathematical precision. The centre is simply the point of greatest functional activity. Take, for instance, the centres for motion, and the sensory areas in the cortex; these are nothing more than the points where the various motions and sensations are focussed. These points are to me nothing more than the gateways of ingress and egress to the general cortex. It also seems to me that, the nervous system being a whole, if any one part acts it must necessarily tire the whole. If one part acts, all the other parts must be fatigued; and the evidence is all the time increasing that the interdependence is so great and intimate that this can be held not simply as a mere speculation, but can be regarded as a fact. To such conclusions does the work of Dr. Randolph, and that of Drs. Mitchell and Lewis, incline.

NEW YORK PATHOLOGICAL SOCIETY.

A STATED meeting was held March 23, 1887, the President, T. MITCHELL PRUDDEN, M.D., in the chair.

EXTREME CIRRHOSIS OF THE LIVER AND CHRONIC PHTHISIS.

The PRESIDENT presented two sets of specimens, the first being from a woman who had suffered from the symptoms of cirrhosis of the liver and nephritis. She gave a history of alcoholism. The autopsy revealed two distinct sets of lesions. There was marked cirrhosis of the liver, with chronic diffuse nephritis. There was also chronic miliary tuberculosis and tubercular peritonitis. The symptoms from which she had suffered were due to the cirrhosis rather than to the tuberculosis.

MULTIPLE ADENOMATA OF THE KIDNEYS.

The second set of specimens presented by the President illustrated multiple adenomata of the kidneys in a man who died of an injury. He presented the specimens not because adenoma of the kidneys is so exceedingly rare, but also because in this case the tumors were multiple, which was not so very common; they occurred in both kidneys, which again was not very common. They illustrated the two forms in which adenomata occurred,—the alveolar and the papillomata. They were sharply circumscribed, and varied in size, showing the progress of the growth. Some were brown, some white, the difference in color being due to the deposit of pigment in the brown ones.

PNEUMONIA AND PLEURISY OF SEPTIC ORIGIN IN AN INFANT.

Dr. J. LEWIS SMITH presented the lungs and related the history of the case of a child which died at the eighth month. It had been healthy, and even at death was not much emaciated. About five weeks ago a cellulitis was noticed in front of the ear. After it had continued about a week the physician discovered fluctuation and lanced the abscess, about two drachms of pus escaping. The discharge from the opening nearly ceased in two or three weeks. This abscess seemed to sustain an etiological relation to the disease of which the child died. Two weeks before its death the child became suddenly very feverish and restless; it vomited several times during the first day and night. The temperature on the first day, he was told, was a little more than 104° F. Throughout the disease there was more than the usual amount of cerebral symptoms seen in pneumonia. Dr. Smith saw the case in consultation, and discovered a small amount of dulness at the apex of the right lung. He saw the child again after about a week, when there was complete dulness over the entire left lung, it being the

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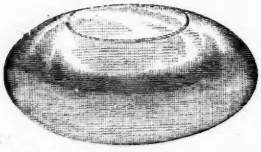

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percussion-note of pleuritic exudation. The respiratory sounds were indistinct and distant, perhaps slightly broncho-vesicular in character. The apex-beat of the heart could not be detected. The pulse was 180, the respirations 70 to 80. The temperature had been constantly high, at one time 105.5°.

At Dr. Smith's second visit the temperature had fallen to 102°. He was inclined to believe that, in addition to a pleuritic exudation, there was also pericarditis. The autopsy showed a nodule of pneumonia at the upper part of the right lung. There was a little fibrinous exudation along the free border of the upper lobe on this side. Cutting into this portion of the lung, they found as many as eight points of necrosed lung. On the left side about two and a half ounces of sero-fibrinous exudation escaped; the whole of this lung was covered with pleuritic exudation. The lower lobe was almost completely hepatized. The lower superficial portion of the left lung seemed also to be in a condition of commencing necrosis. There was no pericarditis. Dr. Biggs had made a microscopic examination. Dr. Smith thought the pleuritic and pneumonic inflammation were septic in origin, the point of infection being the abscess on the face.

REMOVAL OF THE UTERINE APPENDAGES.

Dr. JONES presented the ovaries and tubes in about eight cases removed for disease and severe symptoms. The histories of several of the cases were read, together with remarks upon the title of the operation.

BULLET-WOUND OF THE LIVER.

Dr. JACKSON presented the liver of a man who attempted suicide with a pistol (calibre thirty-two). The ball entered three-quarters of an inch below the ensiform cartilage, half an inch to the left of the median line. The patient walked across the room to a bed after the injury, and was doing well in the afternoon, when Dr. Sands probed the wound a distance of four and three-quarter inches. The ball was felt beneath the skin, below the right scapula. The question of laparotomy was raised, and was left for the family to decide. They preferred that it should not be performed. The expectoration of a little bloody mucus was the only symptom of note. A small area of hardening of the lung was present in the neighborhood of the bullet. About a month after the injury the patient's mental symptoms returned: he attempted to jump out of the window. He lay comatose the last five days of his life. The autopsy showed that the ball had traversed the left lobe of the liver and passed through the diaphragm and posterior mediastinum. No hollow viscera were penetrated. There was no general peritonitis, and no hemorrhage into the peritoneal cavity. There was some broncho-pneumonia in both lungs. Death seemed to have been due to the acute mania.

Dr. W. H. PORTER had, last winter, made an autopsy in a case in which a bullet passed directly through the right lobe of the liver, just to the right of the gall-bladder; yet there was absolutely no hemorrhage into the peritoneal cavity. The man lived two or three days after the injury, and seemed to have died from septic infection arising from the entrance of air into the retroperitoneal tissue. He remembered another case in which no hemorrhage followed the passage of a bullet through the liver. He also recalled the case of a man who had quite an extensive rupture of the liver without hemorrhage.

DANGER ATTENDING MOVEMENT OF THE BOWELS CONFINED SOME DAYS AFTER LAPAROTOMY.

Dr. DUDLEY reported further on the case of hysterectomy the specimens of which he presented at the last meeting. The patient had no untoward symptoms, and was doing well, until the sixth day, when he caused the bowels to move. The fact that she had been doing so well was one reason why he did not move the bowels sooner. Soon afterwards serious symptoms developed, and the patient came near losing her life. She was now, however, doing well. This was the second or third case which he had seen in which serious symptoms had followed movement of the bowels confined six or seven days after laparotomy: in one death occurred, and the autopsy revealed a ruptured abscess beneath the stomach. He thought it was a serious mistake to allow the bowels to remain confined so long a time after the operation.

REVIEWS AND BOOK NOTICES.

VON ZIEMSSEN'S HAND-BOOK OF GENERAL THERAPEUTICS. In Seven Volumes. Vol. V. General Orthopædics, Gymnastics, and Massage. by PROFESSOR FRIEDRICH BUSCH, M.D., of Berlin (Translation edited by NOBLE SMITH, F.R.C.S. Edin.); Hydro-Therapeutics, by Dr. W. WINTERNITZ (Translated by F. W. ELSNER). Illustrated. Pp. 624. 8vo, cloth.

The tendency of modern practice of medicine to settle down to routine prescribing of formulæ, more or less stereotyped, for the relief of physical disorders is due to the superficial and hasty teaching of our schools. Men graduate in medicine without any knowledge of the therapeutics of gymnastics, without having ever listened to a lecture on massage, and without any acquaintance with hydro-therapeutics other than a dim idea that it is a variety of irregular practice. Noting the importance of the subjects discussed in

the present volume of this classical series of therapeutic hand-books, we have found our interest stimulated by the able and scientific treatment of them by Busch and Winternitz, who are recognized as pioneers in this department. A valuable bibliography is contained in each section of the volume.

A PRACTICAL TREATISE ON IMPOTENCE, STERILITY, AND ALLIED DISORDERS OF THE MALE SEXUAL ORGANS. By SAMUEL W. GROSS, A.M., M.D., LL.D., etc. Third Edition, thoroughly Revised. With Sixteen Illustrations. Philadelphia, Lea Brothers & Co., 1887. 8vo, cloth. Pp. 172.

This handsomely-printed monograph upon disorders in the treatment of which the author has a well-earned reputation now appears in a third and thoroughly revised edition; it has also been honored by a Russian translation. In its four chapters Impotence, Sterility, Spermatorrhœa, and Prostatorrhœa, and their various forms, are discussed from a clinical stand-point especially, with judicious remarks upon pathology and treatment. The relation existing between strictures of large calibre with masturbation on the one hand and impotence on the other is brought out prominently in the histories of several cases, which without urethral examination would have been classed as psychical impotence.

MEDICAL ELECTRICITY. A Practical Treatise on the Applications of Electricity to Medicine and Surgery. By ROBERTS BARTHOLOW, A.M., M.D., LL.D., etc. Third Edition, Enlarged and Improved, with One Hundred and Ten Illustrations. Philadelphia, Lea Brothers & Co., 1887.

The present edition has been enlarged by the additions chiefly in the sections upon therapeutics, and a fuller account is given of the appliances for electrical illumination and the apparatus used in galvano-cautery. Galvano-faradization and electric baths have also received fuller consideration. No practising physician can afford to use electricity without informing himself as to its scientific applications, and to those wishing a good manual upon the subject this handsomely printed and illustrated treatise will prove very acceptable.

MANUAL OF TREATMENT. A Concise Presentation of the Modern Methods of Treating Disease Employed by the best Authors, Teachers, and Practitioners, arranged with special reference to the Needs of American Practitioners. By C. F. TAYLOR, M.D., and WILLIAM F. WAUGH, M.D. Published by the Medical World, Philadelphia, Pennsylvania, 1887. Cloth, 8vo. Pp. 532.

This manual of practical therapeutics is in the popular and convenient form of an encyclopædia, the subjects being alphabetically arranged for convenience of reference. The practical recommendations of many physicians, both European and American, are given in the treatment of the principal diseases, the style being direct and to the point. Great industry has been displayed in collating so many authorities, but greater editorial skill is shown in the careful condensation of the paragraphs on treatment. We think that this book will meet with a large sale, and will more than satisfy those who purchase it.

NEW REMEDIES AND CLINICAL NOTES.

WAKING NUMBNESS.—Dr. Andrew H. Smith, in the April number of *The American Journal of the Medical Sciences*, describes under this title a heretofore undescribed neurosis, and reports four cases, from a study of which it appears that the numbness is something added to the normal condition. It is a purely subjective condition. There is no paralysis of motion or sensation; the tactile sense is unimpaired; there is no change in the temperature of the affected part; the surface is not blanched or mottled; there is no tenderness on pressure. These characteristics separate this condition widely from those known under the name of night-palsy, local asphyxia, digiti mortui, Raynaud's disease, erythromelalgia, and from the various paræsthesias and acroneuroses heretofore described.

Doubtless the conditions upon which the numbness depends are present during sleep, but the sensation is not sufficiently strong to arouse the sleeper, and he first becomes conscious of it when awakened by some other cause.

The cause of this condition is probably central, since the effect is usually symmetrical. It would seem to be connected with the lowering of the circulation which takes place during sleep, and to disappear when the circulation returns to the waking condition, whether the return be spontaneous or the result of rubbing, etc. As to the latter, it is doubtful whether it has any other effect than that upon the general circulation which the muscular exertion would necessarily produce.

As for treatment, in the only case in which the condition existed by itself, and independently of more serious conditions, ergot, digitalis, strychnia, and aconite were tried at different times, but without result. The inconvenience produced by the affection was so slight that no treatment was carried out efficiently, so that even these negative results were of no value. In each of the other cases there was a diseased condition present to which the numbness was subordinate, and which afforded the indications for treatment. In proportion as the treatment of the underlying condition was successful, the numbness disap-

peared. If it be true that the cause is central, no local treatment is likely to be of service.

TYPHO-MALARIAL FEVER.—Dr. J. Edward Squire, in a study of typho-malarial fever, which appears in the April number of *The American Journal of the Medical Sciences*, maintains that this disease is not a subdivision of enteric fever, but a form of malarial fever, and defines it as "a malarial fever which has assumed that adynamic type which is present in enteric fever." He gives a concise account of its history, symptoms, pathology, diagnosis, and treatment.

MISCELLANY.

MATERNAL INJURIES REPRODUCED UPON THE FŒTUS.—There was a very curious case of medical evidence offered recently in a court in Mercer County, Pennsylvania, which is thus stated in the *Albany Law Journal:*

"Some weeks ago, a young woman named Scott, who was soon to become a mother, appeared before a justice of the peace and swore out a warrant for the arrest of a young man named William Bloodgood on a charge of assault and battery. The young woman swore that, two weeks previously, the prisoner had come to her house, and as she objected to his remaining he had choked her until she was almost unconscious, and had twisted her left wrist, almost dislocating it. She said the marks of his fingers and thumb were visible on her throat for several days, and her wrist had remained crooked for some time. She had no witnesses of the assault. Bloodgood admitted having been at the young woman's house, but denied the assault. The justice held him, however, for trial.

"The case came on for trial. The complainant appeared, carrying her three-weeks-old baby. She swore to having been assaulted by the prisoner, as she had sworn before the justice of the peace, and that she was the mother of the child in her arms. Her lawyer then offered to show the baby to the jury. After examining it the judge allowed this, and the prosecuting lawyer took the infant to the jury, and, uncovering its throat, revealed to them the distinct marks of four fingers on one side of it, and the plain and unmistakable impression of a thumb on the other. After the remarkable birthmarks had been examined by the jury, the lawyer uncovered the baby's left wrist. It was twisted out of shape and swollen, as if it had been suddenly wrenched. These marks on the throat and the twisted wrist corresponded exactly with the injuries the baby's mother swore, more than a month before it was born, to having received at the hands of the prisoner Bloodgood. After this startling and most extraordinary evidence was presented, the prosecution rested its case. The prisoner was convicted."

The facts of the case were taken from newspaper articles, and not from official reports, so that there may be chance for some inaccuracy; but the case is certainly a most remarkable one.

It will be noticed that the woman was far advanced in pregnancy, when it is usually considered that physical effects upon the fœtus are not probable. There does not seem to have been any expert medical testimony produced to connect scientifically the birthmarks with the alleged assault, and yet it is certain that little baby presented to the minds of the jury the strongest corroborative evidence of fact of the assault.

A LIBELLOUS EPITAPH.—It is generally considered a mean and despicable trait to speak ill of the dead, but the question whether a person could libel a dead person has only been recently passed on. In an English court the following very curious funereal inscription came up for discussion. It was an epitaph proposed for the statue of a deceased person: "In Honour of John Batchelor, a Native of Newport, who early in life left his country for his country's good; who on his return devoted his life and energies to setting Class against Class; a Traitor to the Crown, a Reviler of the Aristocracy, a Hater of the Clergy, a Panderer to the Multitude, who, as First Chairman to the Cardiff School Board, squandered funds to which he did not contribute; who is sincerely mourned by Unpaid Creditors to the Amount of Fifty Thousand Pounds; who at the close of a wasted and misspent life Died a Demagogue and a Pauper, this Monument, to the Eternal Disgrace of Cardiff, is erected by Sympathetic Radicals. 'Owe no man anything.'" An epitaph like this certainly comes very close to the libellous grade; but the court held that there could be no libel strictly against the dead, and, as this epitaph contained nothing reflecting on the living, it was decided that nothing could be done.

A short time since a case came up for trial in Missouri where a father, believing that his son had been drowned by some playmates, placed this statement on the gravestone. He was obliged to pay heavy damages for the exercise of his spite against the living. In the first case given, that of the Cardiff gentleman, there seemed nothing reflecting on the living, so the judge was compelled to dismiss the case.

THE DIRECT ACTION OF ATROPINE, HOMATROPINE, HYOSCINE, HYOSCYAMINE, AND DATURINE ON THE HEART OF THE DOG, TERRAPIN, AND FROG.—Dr. H. G. Beyer, from an experimental study of the action of these drugs, which appears in the April number of

The American Journal of the Medical Sciences, reaches the following conclusions:

1. Atropine, homatropine, hyoscine, hyoscyamine, and daturine are stimulants of the sympathetic nerve apparatus of the heart.

2. The vaso-motor portion of this nerve apparatus is affected by comparatively small doses of these drugs, giving rise to either acceleration or augmentation in the heart's action.

3. The inhibitory portion is excited by large doses only, giving rise to slowing of the heart's action, and, finally, causing diastolic arrest.

4. The muscular substance of the heart is greatly excited by atropine, homatropine, and daturine, and only slightly so by hyoscine and hyoscyamine.

5. The vaso-motor nerves and their ganglia are the first to become exhausted, the inhibitory nerves and their ganglia are the next, and the muscular substance is exhausted last of all.

6. The slowing of the heart's action which follows the administration of these drugs in the intact animal may be sufficiently accounted for by their influence on the inhibitory nerves and ganglia of the heart itself.

7. The acceleration following the administration of certain doses of these drugs cannot be sufficiently accounted for by their action on the accelerator nerves and ganglia within the heart, but is principally due to causes resident outside this organ.

THE ASSOCIATION OF GENITO-URINARY SURGEONS will hold its first annual meeting at Lakewood, New Jersey, May 17 and 18. An interesting programme has been issued. Dr. E. L. Keyes, of New York, is Temporary Chairman, and Dr. R. W. Taylor, of New York, Temporary Secretary.

THE Penn Mutual Life Insurance Company of Philadelphia has appointed Drs. Clara Marshall and Anna Broomall examiners for a special class of risks among women.

THE American Climatological Association will hold its Fourth Annual Meeting in Baltimore on Tuesday and Wednesday, May 31 and June 1.

NOTES AND QUERIES.

OBITUARY.

PROFESSOR JAMES STEWART JEWELL, M.D., a prominent physician in Chicago, died on the 18th inst., after suffering with a complication of disorders for more than five years. He was born at Galena, Illinois, September 8, 1837, and after pursuing the regular course of medical studies at the Chicago Medical College, he was graduated from that institution in 1860. Four years later he was elected to the vacant chair of Anatomy in the faculty of his Alma Mater, which he filled for five years. In 1872 he was elected Professor of Nervous and Mental Diseases, which connection he retained for many years, and at the time of his death he was Professor Emeritus. He rendered substantial service to the cause of neurology in this country, both by his teaching and writings, and by establishing the *Journal of Nervous and Mental Diseases*, of which for several years he was chief editor. He was also one of the organizers of the American Neurological Association. A few months ago he began a new journal, the *Neurological Review*, but it was soon suspended, owing to his increasing ill health. By those who had the good fortune to know Dr. Jewell he was highly esteemed, and he was respected by all.

OFFICIAL LIST

OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U.S. ARMY FROM APRIL 10, 1887, TO APRIL 23, 1887.

LIEUTENANT-COLONEL J. R. SMITH, SURGEON. — Detailed as member of board to meet in Washington, D C., April 28, to prepare rules and regulations for the government of the Hospital Corps of the Army. Par. 8, S. O. 92, A. G. O., April 21, 1887.

MAJOR MORSE K. TAYLOR, SURGEON.—Relieved from duty at Fort Sill, Indian Territory, May 10, 1887, to proceed home, San Antonio, Texas, preparatory to retirement. Par. 20, S. O. 92, A. G. O., April 21, 1887.

MAJOR CHARLES L. HEIZMANN, SURGEON.—Detailed as member of board to meet in Washington, D.C., April 28, to prepare rules and regulations for the government of the Hospital Corps of the Army. Par. 8, S. O. 92, A. G. O., April 21, 1887.

CAPTAIN FRED. C. AINSWORTH, ASSISTANT-SURGEON.—Detailed as member of board to meet in Washington, D.C., April 28, to prepare rules and regulations for the government of the Hospital Corps of the Army. Par. 8, S. O. 92, A. G. O., April 21, 1887.

CAPTAIN EDWARD B. MOSELEY, ASSISTANT-SURGEON.—Ordered for duty at Whipple Barracks, Arizona. S. O. 89, A. G. O., April 18, 1887.

CAPTAIN JOHN J. KANE, ASSISTANT-SURGEON.—Resigned April 13, 1887. S. O. 85, A. G. O., April 13, 1887.

CAPTAIN CHAS. RICHARD, ASSISTANT-SURGEON.—Granted two months' leave of absence, on surgeon's certificate of disability. S. O. 82, A. G. O., April 9, 1887.

FIRST-LIEUTENANT FREEMAN V. WALKER, ASSISTANT-SURGEON.—Ordered from Fort McIntosh, Texas, to Post of San Antonio, Texas. S. O. 45, Department of Texas, April 11, 1887.

FIRST-LIEUTENANT JULIAN M. CABELL, ASSISTANT-SURGEON (recently appointed).—To proceed to Fort Omaha, Nebraska, and report in person to the commanding officer of that post for temporary duty. Par. 19, S. O. 92, A. G. O., April 21, 1887.

APPOINTMENTS.—To be Assistant-Surgeons, with the rank of First-Lieutenant, to date from April 14, 1887: Charles E. Woodruff, Julian M. Cabell.

THE Army Medical Board, New York City, New York, is dissolved. S. O. 82, A. G. O., April 9, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U.S. NAVY FOR THE TWO WEEKS ENDING APRIL 23, 1887.

PASSED ASSISTANT-SURGEON S. H. GRIFFITHS.—Detached from the U.S.S. "Lancaster," and waiting orders.

PASSED ASSISTANT-SURGEON C. T. HIBBETT.—Detached fr. m duty on iron-clads, City Point, Virginia, and waiting orders.

PASSED ASSISTANT-SURGEON E. H. MARSTELLER.—Ordered to duty on iron-clads, City Point, Virginia, the 20th inst.

PASSED ASSISTANT-SURGEON A. C. H. RUSSELL.—Ordered to duty at Naval Laboratory, New York, May 2, 1887.

PASSED ASSISTANT-SURGEON A. C. HEFFINGER.—Ordered to Widow's Island, Maine, to superintend building a naval hospital, wharf, and other improvements, under instructions of the Surgeon-General of the Navy.

ASSISTANT-SURGEON CHARLES E. WOODRUFF.—Resignation accepted, to take effect April 8, 1887.